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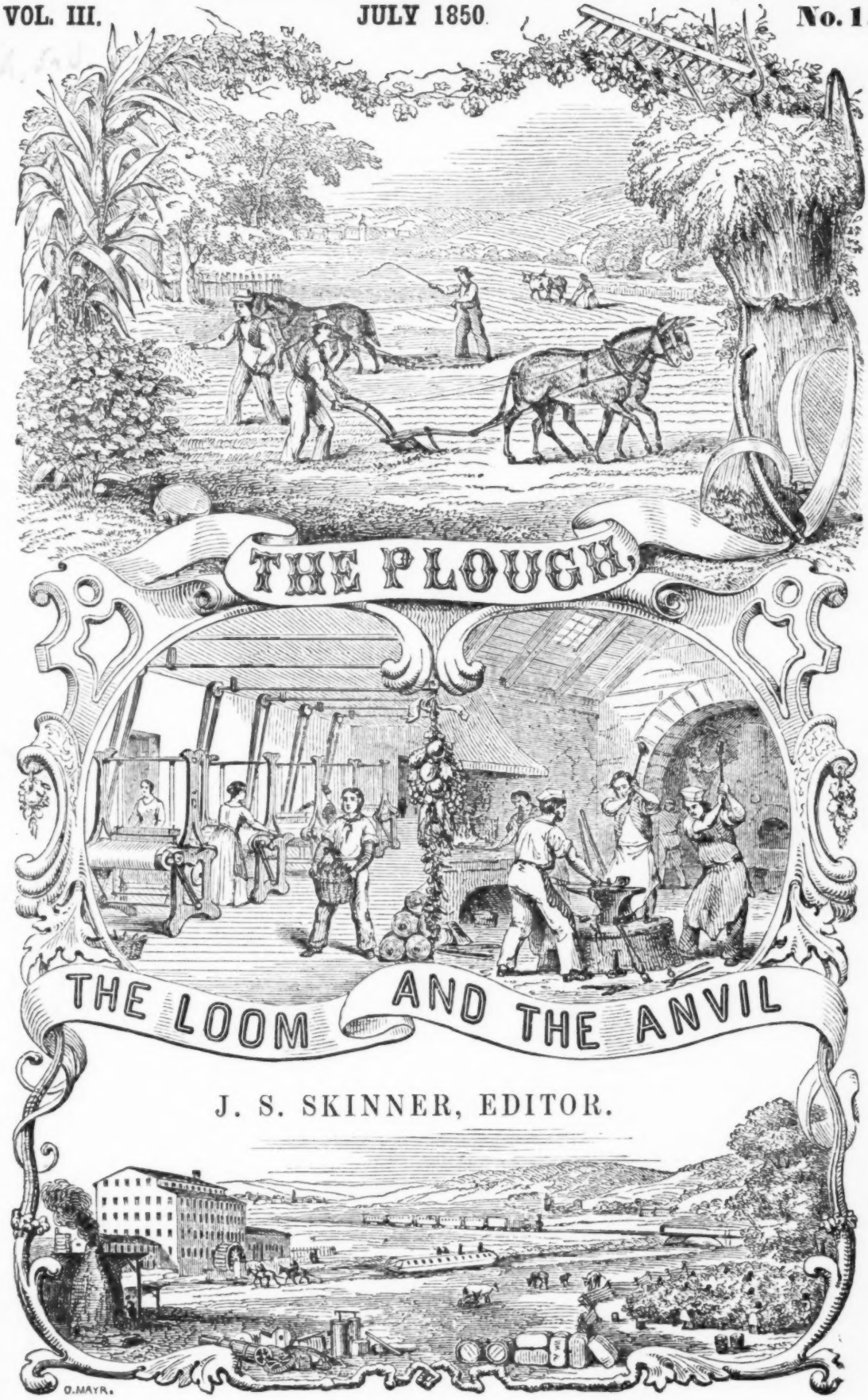

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* Read the signature to the article of Sheep Husbandry in Alabama H. W. C * * * * * * instead of four asterisks.

☞ We are well aware that many patronize this journal who are not directly and practically interested in agriculture; but every man is interested in the general prosperity of the country, and that depends more on the encouragement given to domestic industry, in the developement of our own resources, than on any other one thing. This, then, is to warn, and to solicit those who unite with us in that opinion, to exert themselves for the support of the only organ of agriculture in the Union, that has ever undertaken to assert that doctrine as the foundation of all agricultural improvement, and of all national prosperity. Somewhat more than one hundred withdrew their patronage, at the close of the late volume—still our course is onward, and so is the cause we advocate—yet the undertaking is laborious and expensive. We contribute to it, individually, more than $4000 a year by our labour and hard earnings. Hence we call the more earnestly, and with a stronger feeling of justification and confidence, on all who are the friends of the cause we are supporting, to their influence actively, not only to fill up the gap left by withdrawing subscribers; but to strengthen our own efforts by additional arguments, and *additional subscribers.* Those who would eat the kernel, must help to crack the nut. There are very few friends but could send one more name, and we want five hundred.

☞ Governor Trimble of Ohio, has already sent us five new subscribers.

The Plough, the Loom, and the Anvil.

VOL. III. JULY, 1850. No. I.

THE HARMONY OF INTERESTS:

AGRICULTURAL, MANUFACTURING, AND COMMERCIAL.

BY H. C. CAREY.

WHO THE CAPITALISTS OF A COUNTRY ARE, AND HOW THEY ARE LIABLE TO BE AFFECTED BY ITS COMMERCIAL POLICY.

HAVING been ourselves reared, emphatically, *in the country*, not distant, it is true, yet for the want of the modern facilities of communication, cut off in a manner, and secluded from the busy throng of large commercial towns, we may be allowed to know something of the habits and course of thinking among that class who constitute the mass of our readers; and this knowledge begets the apprehension that most of them will associate, with the word "capitalist," at the head of the following chapter, inseparably and exclusively, the idea of a "moneyed man," possessing a large fortune in the banks or in the funds—too many of them leeches, born only to suck the blood of honest industry—and that readers prepossessed of that idea, may therefore be ready to say, how does it concern us, mere owners only of land and cattle, to know "*how* protection affects the capitalist?"

Now, than this narrow conception of the broad and true import of the word capitalist, it behooves all inquirers after truth, equally the owner of land and of ships, the man at the plough and the anvil, and him at the work-bench, and in the mine or at the furnace, to know that no idea can be more erroneous, nor, in this connection, more perniciously delusive. It is not for the nabobs of the town, the millionaires, that *we* either think, write, or care. Such men are above the reach of ordinary vicissitudes, and can generally take care of themselves, as big flies break through the meshes of difficulty, leaving thousands of smaller ones to be caught and devoured. Hence it is, that in their effects, low, ever-fluctuating and uncertain duties; duties depending on custom-house oaths and stereotyped manifests, left blank to be filled up "to order" from the foreign manufacturer, according to circumstances; *such* duties may, and in effect do first reach and ruin thousands of small capitalists, honest labouring men, whose capital is in their individual character and industry, before they can vitally affect the great capitalist. *They* have built their palaces on the bluffs and high grounds, far above the reach of spring-tides and sudden overflows, like the great millionaire, Mr. Brown, of "Richmond Hill, near Liverpool," author of the persuasive and patriotic letter to Mr. Meredith, on the folly of *a protective policy for the United States!* Though such capitalists too often influence public legislation, they are never the peculiar care of wise governments. Having already amassed their millions, out of the blind credulity of those whom they would persuade to go on employing them, under the free trade system, between the planter of cotton on the coast of Mississippi, and the weaver of cotton in Manchester, who expects such capital counsellors ever to acknowledge the truth of General Jackson's declaration, that "we have been too long subject to the policy of British merchants?" No! no! for ourselves, *timeo Danaos et dona ferentes.* We distrust their advice. What we seek and desire is, that the study of this chapter, and of all these letters from Mr. Carey, in reply to the circular from the Secretary, should be constantly accompanied with the idea, which is true, that the idle and the avaricious nabob, whose fortune is in the public securities, as well as the enterprising and philanthropic man whose fortune gives employment to honest industry in useful enterprises, is no more a capitalist, except in amount, than he who has a section of land, with "a sheep and a cow;" nay, no more, nor more worthy of being cared for, in the legislation of a well administered government, than the day-labourer, whose capital is in his working-tools, and his capacity and willingness to use them. Every man in this country, with physical power to labour, is a capitalist; and thousands and tens of thousands of such capitalists may be oppressed and ruined, for want of protection against the unprotected, trodden-down pauper-labour of Europe, while the great capitalist, in his life-boat, here as there, survives the common wreck. Men at the loom, and the work-bench, and the saw-mill, the miner and the forger, the best customers of the farmer and the planter, first, and they in their turn, by thousands and tens of thousands, may be crippled and ruined in the use of their capital, by laws that paralyze industry, before they reach those whom too many of our friends in the country regard as the only capitalist, to wit, the great "moneyed men" of the towns, just as the fire in the woods destroys all the undergrowth and valuable young timber, leaving only the great trees, whose roots have gone into the bowels of the earth, and their branches to the clouds.

What we desire then is, that our readers should feel how deeply and truly, of all men, *they* are interested in such questions; that they should see that they stand on intermediate ground between ruin and the great capitalist; in a word, that they should understand that the capital of the country is *in the land and labour of the country!* The earth, after all, as Mr. Carey truly says, is the great machine; and the policy which brings its products to the best markets, and with the least expenditure in the work of deportation and exchange between the producer and the consumer—*that* is the policy which it behooves the owners and cultivators of the soil to *understand* first, for then they will uphold and enforce it; for then they will perceive that such is the only policy that will keep up and increase the powers of the great machine of production, insuring adequate return to the capital employed in its cultivation.

Edit. P. L. & A.

CHAPTER THIRTEENTH.

HOW PROTECTION AFFECTS THE CAPITALIST.

If protection be "a war upon labour and capital," it must tend, by lessening the productiveness of labour, to prevent its proper employment, and thus to diminish the power of accumulating wealth by the clearing, draining, and enclosing of lands, the building of houses, the construction of roads and bridges for facilitating transportation, and of machinery for converting the products of the earth into the form required to fit them for the use of man. If, on the contrary, it be really, as its name imports, protection to the labourer, then must it increase the power of accumulating wealth, to be used for increasing his productive power, and thus facilitating the accumulation of further wealth.

The great machine of production is the land. The more time and mind that can be given to its cultivation, the more rapid will be the increase of production, the larger will be the return to capital, and the more rapid the improvement in the condition of man.

The more time and mind that *must* be given to the preparation of machinery of transportation, the slower will be the increase of production, the smaller will be the return to capital, and the slower the improvement in the condition of man. The object of protection is that of bringing the consumer to take his place by the side of the producer; thus saving transportation, and facilitating the application of labour to production, while diminishing the number of persons among whom the produce is to be divided.

A furnace, capable of producing 5000 tons of iron per annum, may be put in motion at a cost of $30,000. These 5000 tons would exchange in Ohio for 150,000 bushels of wheat, the produce of 12,500 acres of land that has cost $40 dollars an acre, equal to $500,000, for the labour employed in clearing and draining it, in making fences, building barns, houses and doing all other things necessary to fit it for production. Let us suppose the furnace, houses for the men, preparation of the mines, &c. to have cost $100,000, and yet the capital employed is five to one, to obtain precisely the same return. This, however, is not all. The wheat weighs 4000 tons, and to transport this to New York and thence to Liverpool requires more capital in wagons and canal boats than would have been required to produce the iron at home; and far more capital employed in ships than would have done it; and thus we have a total of seven or eight, if not even ten times the capital that is needed, while the return is precisely the same—5000 tons of iron.

The capital invested in building the furnace, the houses, and in preparing the mines, would have been permanent, and it would have given value to every acre around, because it would have made a market on the land for the products of the land, whereas, the wagons, ships, and canal-boats disappear with time; and the land, constantly cropped, becomes exhausted, and is frequently abandoned by the owners, and thus is the whole wasted.

The farmer will say that he could have obtained no more iron on the spot for the produce of his land, that the iron-master paid him for his wheat and charged him for his iron according to the price in Liverpool, and that he profited as much by exchanging in the one place as in the other. This is too nearly true. So long as he is *compelled* to compete with the inferior labour of Europe, so long must he accept this as a consequence. So long as he is *dependent* on England for a market for a single million of bushels of wheat, she will fix the price of all that is produced; and so long as he is *dependent* on her for the last few thousand tons of iron, she will fix the price of all that

is consumed. He needs to bring the home consumption of food up to the production, and the home production of iron up to the consumption, and the price of both will then be fixed at home. A little capital will then yield much iron. Now, much capital is required to produce little iron.

It has been shown (page 74,) that the whole of the cotton, 311,000,000 of pounds, consumed by the people of Great Britain and Ireland in 1845 and 1846, would have been paid for by 6,250,000 pieces of plain cottons, and 210,000 tons of iron, delivered in Liverpool. By the time this cloth and iron reached the plantation they would have shrunk into 5,000,000 pieces of cloth (120,000,000 of yards) and 160,000 tons of iron; and perhaps into a still smaller compass, even supposing them imported duty free. To have produced this 120,000,000 yards of cloth in those *two years* would have required 20 mills of moderate size, each capable of converting into cloth 2000 bales of cotton, and to have produced this iron would have required little more than two establishments, such as the one described at page 42, as existing in the Lehigh region of Pennsylvania.

To transport the 700,000 bales of cotton must have required 60 ships, each carrying 2000 bales, and making three voyages a year. Add to these, steamboats, warehouses, packing-machinery, &c., on this side of the Atlantic, and the docks, drays, warehouses, cars, railroads, &c. on the other side, and it will be found that the capital required for the work of transporting these 311,000,000, *after they had reached the place of shipment*, was three times more than would have furnished machinery that would have enabled the planter to convert the whole of them on the spot. *For all this the planter pays*, and therefore it is that we find him to have sent away 311,000,000 of pounds of cotton, to be exchanged in Liverpool for 74,000,000 of pounds in the form of cloth, and then to be reduced to 60,000,000 by the time they arrive on the plantation, thus giving five pounds of cotton for one yard of cloth. It is obvious that, even thus far, much capital is required to obtain small product.

Let us now see what was the amount employed by the planter in producing, at the place of shipment, the 250,000,000 of pounds that he gave in those two years to the people of England, for twisting and weaving the 60,000,000 that came back in the form of cloth. The annual average is 155,000,000 sent out, and 30,000,000 returned, 125,000,000 being lost on the road. The average product of cotton land is under 300 pounds an acre, at which rate 416,000 acres would be required for the production of the 125,000,000, saying nothing of the remainder of the various plantations not under cultivation. The average amount of labour, per acre, required to fit these lands for production, including fencing, houses, machinery, gin-houses, roads, &c., has not been less than one hundred days, and I should be safe in putting it much higher. Estimating those days at only 50 cents each, we obtain $50 as the actual expenditure required for each acre of land, at which rate the capital in land would be $20,800,000. Estimating the hands employed at no more than the land, we have a further sum of $20,800,000. Next, we have the capital employed in transportation to the place of shipment, and that some idea may be formed of that, I give the following statement, by one who furnishes it as the result of his personal observation:—

"Of the expense of this first movement, some idea may be formed by those who have seen it coming over dreadful roads, up to the hub, dragged slowly along 20, 30, or 40 miles, as we have seen it coming into Natchez and Vicksburg, hauled by five yoke of oxen carrying 2800 to 3000 pounds, and so slowly that motion was scarcely perceptible. So many perish in the yoke in winter and spring that it has been said, with some exaggeration, that you might walk on dead oxen from Jackson to Vicksburg. That was before the railroad was made. A wagon is loaded up, say 14 miles from Natchez, and

started at night, and reaches there in time to get back the next night time enough to "load up." Thus ten oxen have been wearing and tearing and dropping their manure on the road for 24 hours to make one load."*

Here we have five yoke of oxen transporting 3000 pounds in a day, a distance of only fourteen miles. Supposing the average distance to be 75 miles, and the roads to be similar, it would take them, *on an average*, a week to transport that quantity from the plantation to the place of shipment. I will, however, suppose that a single yoke of oxen can transport four bales, or 1800 pounds, per week. The number of loads would be 70,000, to be transported in the shipping season, which averages about eight months. To do this would require, always on the road,

2300 wagons,	average cost $80, ...	$175,000
4400 oxen,	" " $40, ...	175,000
2200 men,	" " $600, ...	1,320,000
		1,670,000
	Total capital, ...	$43,270,000

This is a very low estimate of the fixed labour, called capital, given to the production at the place of shipment of these 125,000,000 of pounds of cotton. Let us now see how much is the fixed capital, the use of which is given by the distant manufacturers in exchange for all this. A mill that will work up 2000 bales of cotton can readily be produced at a cost not exceeding $100,000. These 2000 bales contain 900,000 pounds of cotton. Thirty-four such mills would work up 30,000,000 of pounds, and the cost of all these mills would be $3,000,000, or about one-fifteenth of the capital employed by the planter. Need we wonder that the planter's capital yields him a small return?

The more directly power is applied, the more efficiently it is applied. The more machinery that intervenes, the less is the power and the smaller the effect. The planter obtains his cloth and iron by the indirect means of raising cotton and food to send abroad, whereas, if he would apply his power directly to the production of both, production would be doubled and his power of accumulation quadrupled. Had the planters of 1845 and '46, provided themselves with machinery for the conversion of cotton into cloth, to the extent of the 155,000,000 consumed in England, they would have seen furnaces rise among them capable of producing treble the iron they could have obtained for that cotton, and thus would have been made a market on the land for the products of the land, the result of which would have been that they would have obtained far more for the balance of their crop than they did obtain for the whole. The produce of those 155,000,000 would then have bought them iron sufficient to make many hundred miles of railroad, and thus, while diminishing their necessity for resorting to distant markets, they would have increased their power so to do, by increasing their capital. It will be said, however, that while the labour employed in producing the cotton is set down, there is no allowance for that required for its conversion into cloth. No such allowance is needed. The labour of men, women, and children, now absolutely wasted in *every county* of the South is more than would be required for five such mills, and the cotton that is lost for want of aid in harvest-time would twice over pay for it.

The whole of those 125,000,000 of pounds of cotton consumed by the people of Great Britain and Ireland was thus absolutely wasted, and therefore it was

* Skinner's Journal of Agriculture, Vol. III., p. 483.

that the planter obtained one pound of cotton in exchange for five. Could the charges be saved that now intervene between the planter on one side, and the spinner and weaver on the other, he would obtain two pounds of cloth for three of cotton, and to acomplish this there is but one mode of proceeding, and that is *to persuade the machinery to come to the cotton*, and thus obviate the necessity for sending the cotton to the machinery. At present, we seem to be pursuing the same course that would be pursued by the man who should expend hundreds of thousands of days of labour in clearing and cultivating land for the production of wheat, and then wasting two-thirds of it on the road to and from the distant mill, for want of the application of three or four thousand days of labour to put up a mill on his own land. A grist-mill costing 5,000 days of labour will grind all the grain produced upon land that has cost 300,000, and perhaps 500,000, days of labour to place it in its existing condition; and yet the man above referred to, would waste on the road annually more days than would build such an one. So it is with our planters and farmers. We see in every little community that mills speedily rise for the conversion of grain into flour, and are satisfied with one-eighth toll; and so we see in every neighbourhood, where there are timber and a little water-power, saw-mills are got up for converting lumber into boards; and with each such operation, flour and boards are obtained at less cost of labour, and the farmer has to give less of wheat, and of timber, to have them converted into flour and boards. What would the wheat-grower say who should have to give five bushels for getting one back in flour*—and what should the cotton-grower say to getting back one bale of cotton in the form of cloth? Let him reflect on this question, and then answer the following one: Why should not every community of somewhat larger size have in like manner its own place for converting cotton into cloth? Could that be done, the planter would obtain half the cloth yielded by his cotton.

The latter will at first view probably deny this. He will say: If I sell my cotton to go to Manchester, it will produce me five cents. If I sell it to the manufacturer on the ground, he will give me no more. If I buy English cloth, it will cost me ten. If I had a manufacturer on the ground, I should pay the same. Such must be the case so long as he shall find himself *compelled* to compete in the market of England with the poor Hindoo for the sale of his cotton, and compelled to purchase there, a part of his supply of cloth, for so long will the prices of both be fixed in Liverpool. With every step in the progress of emancipation, however, he would find himself a gainer. Let him look around and see how much of the labour of his neighbourhood and of his own plantation is wasted for want of the demand that would be produced by the vicinity of the factory; and then let him reflect upon the advantage to be derived from having, in that factory, a place of employment throughout the year, of the persons who might, in case of need, aid him in his picking, and thus save for him the labour that is now lost on cotton wasted in the field, or overtaken there by frost. Let him consider these things, and he will probably find that the loss in them alone is equal to the value of the labour required for the conversion of all the cotton of the neighbourhood into yarn. If they could be saved, and he could thus, with

* "In some places in Virginia—in Rappahanock, for instance—the farmer does pay as much as one barrel to get four transported to Fredericksburgh, apparently not stopping to calculate at what price and what yield per acre that becomes a losing game, and apparently not reflecting, that while they pay 25 cents for transporting one dollar's worth of *wheat* they could transport the same weight, or fifteen dollars' worth of wool—or $7 50 of cheese, or $18 worth of live beef—at the same cost!"—*Ibid.*

the same labour, send yarn to market instead of cotton, he and his neighbours would be great gainers by the operation.

Having done this, let him look to the price at which he sells his corn, and see what would be the difference to him if he had a market on the ground in consequence of the conversion of some of his neighbours into mechanics, mill operatives, &c. Instead of remaining poor on the produce of little pieces of land, they would obtain good wages, and consume double their present quantity, while producing none. He would at once save much of the cost of transportation. He would sell food at home instead of having to buy it, with cost of commissions and transportation from his own neighbourhood added to it to increase its price, at Manchester or Lowell, and all would be great gainers by the operation.

Let him then look to his cleared land, and study what would be its value if all the manure yielded by his hay, and oats, and corn, and fodder, went back upon the land, instead of being wasted on the road, and if all of that yielded by his wheat and corn remained upon the ground instead of going to Lowell or Manchester, and see if he would not be a gainer by the operation.

Let him then look to his uncleared land, and calculate how much it would cost him to destroy the timber. Let him then calculate the value of the timber, if the factory were near him, and if the blacksmith and the shoemaker, the hatter, and the tanner, the bricklayer and the carpenter, wanted houses; and if a town were growing up around the mill, and its inhabitants wanting pork and meal, and milk, and beef, and flour, and potatoes, and mutton, and see if he would not be a gainer by the operation.

Let him look to the quantity of land upon which this timber stands, and on which he is paying, or losing, interest. Let him then look to the quality of that land, and compare it with that which he now cultivates. Let him calculate how many bushels of potatoes it would yield, and compare their value, when consumed upon the ground, with that of the 300 pounds of cotton now yielded by an acre, and see if he would not be a gainer by the operation.

Let him add all these things together, and see if he would not save all the freights and commissions; even although he obtained no more for his cotton, and paid as much for his cloth. Let him see if he would not obtain the full value of his cotton, instead of, as now, obtaining but one-third of it.

The great cities and towns of the world are built up out of the spoils of the farmer and planter. Looking around in New York, or in Philadelphia, or Boston, it is not possible to avoid being struck with the number of persons who live by merely exchanging—passing from the producer to the consumer—producing nothing themselves. Wagons and wagoners, carts and cartmen, boats and boatmen, ships and sailors, are everywhere carrying about cotton, and wool, and corn, and wheat, and flour, as if for the pleasure of doing it. The man of Tennessee sends his cotton to Manchester to be twisted. His corn goes along with it, to feed the man who twists it. It leaves him worth twenty cents. By the time it is consumed by the Manchester spinner, it is worth, perhaps a dollar. The labourer buys it at that price. The manufacturer gives him a dollar to pay for it, and he charges it to the cloth at $1 10. The corn and cotton become cloth, and the Tennessee man buys it back, paying *five bales for one!* He can sometimes send his corn, but he can never send his potatoes, and the reason why he cannot is, that they are of the class of commodities of which the earth yields so largely that they will not pay freight. The only things he can raise for market are those of which the earth yields little, and that will therefore pay

freight. He raises three hundred pounds of cotton, all of which goes to market, bringing him back but sixty fashioned into cloth; returning nothing to the land of what it drew out of the land, whereas, if he had consumers near him, he would raise almost as many bushels of potatoes, the manure for which would go upon the land to enrich it, and make himself rich. He could then afford to clear, and ditch, and drain, and cultivate the richest land, now covered with timber, or with water.

Why does he not do these things? Why does he not convert the unprofitable consumers, everywhere around him, into profitable ones?* Why does he continue, year after year, to send his grain, or cotton, to the distant mill, instead of bringing, *once and for ever*, the mill to him? The reason may be found in the newspapers every day. Two years since, cotton manufacturers, wool manufacturers, and iron manufacturers were prosperous. Now they are all stopping work. Many are already ruined, and many more are likely so to be. Why is this? Does it arise out of any change in our own affairs? It does not. It arises out of changes abroad. Two years since, England made railroads, and consumption then was large. This year she does not make roads, and consumption is small. Two years since, we built factories and furnaces. This year, manufacturers and furnace-builders are ruined. All of them would be ruined, had they not a Tariff of protection, inadequate as is that of 1846, to give them that protection that is needed to secure them against such changes. Prosperous they would now be, had the tariff of 1842 remained unaltered; and the thousands employed in them would have remained profitable customers for the farmers, instead of being driven over the country to become the rivals of the farmer, increasing the quantity of provisions, of which there is already a redundance.

The capital employed in the transport of cotton is more than would build mills to convert the whole crop into cloth. The mill is saved labour. The transportation is labour lost, never to be regained. The mills once built, the whole of that labour might be applied to the work of production, for

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* The following picture of some of these unprofitable consumers is from a letter to the correspondent of "The New York Herald:"—

"I travelled yesterday over a public road twenty miles, and stopped at nearly every house. They were occupied by what are called 'the poor white people.' I found fifty log-houses on my route. You pass through a forest and come to cleared land. You see on one side of the road a field of corn, say five to ten acres; off a few rods back from the road, amid this corn stands a log cabin, the smoke curling up in blue wreaths even in these hot days. There is a wicket gate opening from the road, through which you pass and follow a footpath until you reach the entrance of the cabin. There is a stone for a step, and you enter. The woman is spinning. She asks you to a seat, which is made of hickory, both uprights and the seat. There are two or three more like it. In the corner of the room is a bed; the fire-place is very large, and the chimney is built of mud outside the hut. There are some nails for hats and clothes. There is a rifle on wooden pins; a shelf, with a few articles upon it, consisting of a broken comb, a Bible printed by the American Bible Society, and a case-knife. In a corner is a barrel. Look into it, and you will find a half bushel of corn meal inside, and over it, on a string, is a piece of bacon. There is a cupboard in the corner; open that, and perhaps you will find a cup and saucer and a plate, and perhaps you won't. This a picture from the life. You ask for the family—'My man is pulling fodder.' 'How many children have you?' 'Six;' and by and by you will see the whole half dozen flaxy-headed children peeping in through the crevices of the hut, for in the summer season, as there are no windows, the filling in between the logs is taken out for air. You wonder how people can live in such a one-room den. Yet they do live, and get on very well. They keep a cow sometimes, a few pigs to make ham and bacon, and they raise corn, wheat, and oats. The cabin is worth twenty dollars, if it was to be bought."

the lost labour of the hands upon the plantation, and of the "poor white people," everywhere throughout the South, is more than would be required for the work of conversion. Protection seeks to enable the planter to save this labour and accumulate capital.

It is said to be "a war upon labour and capital;" but it would here certainly seem to be, what its name denotes, protection to the producer of food and wool against a system which compels him to give the use of fifteen dollars of capital in exchange for the use of one. Its object is that of promoting concentration. That of the system falsely called free-trade is to promote dispersion. The last twelve months have witnessed the expulsion of many thousands of men, and many millions of capital to California, not one-tenth of which will ever return. One of the papers of the day states that

"Considerable excitement has been created here (New York) among those who have made shipments of merchandise to California, by the receipt of letters from commission houses in San Francisco, containing account of sales. It appears that the charges have, in several instances, used up entirely the proceeds of the sales. We hear it stated in dry-good circles, that one of our largest auction-houses sent out over two hundred thousand dollars' worth of dry-goods last winter, for which, up to this time, they have received no proceeds."

Hundreds of ships are now in the Pacific, doing nothing and earning nothing, when they might be carrying cotton, and we are now building other ships to replace them. The capital now invested in those ships and in California would have built mills for the conversion of half the cotton of the South, and furnaces for the production of as much iron as is produced in Great Britain. For all this waste of capital the farmer and planter pay, for the harmony of interests is so perfect that the losses of the ship-owner and manufacturer are invariably borne, in largest proportion, by them.*

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* The following estimate of the quantity of labour and capital *lost by ourselves* and wasted in California, is from the New York Herald, and is not far from the truth:—

"It is estimated that about 500 vessels had, up to the 1st of November, arrived at San Francisco, from the United States and Europe, and that at least 100,000 people were, at that time, in California. The average cost of outfit for each person cannot be less than $200, which makes an aggregate of $20,000,000. It will cost an average of at least $300 per annum for each to live. This amounts to $30,000,000. This makes a total of $50,000,000, for the bare outfit and provisions for one year. The 500 vessels which had arrived, at the latest date, and the 500 on the way, are worth, on an average, about $10,000 each, which amounts to $10,000,000. The time of each individual we estimate to be worth, on an average, $200—total, $20,000,000. Grand total of outfit, cost of living one year, cost of vessels engaged in the trade, and value of time one year, $80,000,000. This is a moderate calculation, as the actual outlay and absorption of capital, up to this time, will probably amount to full $100,000,000. As an offset to this we have thus far received about six millions of dollars ($6,000,000) in gold dust, from California and the whole Pacific coast. It will be perceived that there is still an enormous balance against California, and that it will be a long time, at the rate already realized, before we shall receive even the sum expended, to say nothing about profits. It is our impression that most of those engaged in the trade would be satisfied with merely the cost of their shipments. Most of them have abandoned all idea of profits, and many of them will never realize a cent: the charges, such as freight, storage, &c., will eat up every mill of first cost. The only product of California, to pay for this immense amount of property, is gold. At present it has no other resource, and we know of none but its minerals. It is now a little more than twelve months since the emigration to California commenced, and there has never been known, in the history of the world, such a movement as has been presented in this. Independent of the hundreds of vessels which have departed from all parts of the world for California, we have nearly a dozen of the finest steamships in the world, regularly employed in carrying passengers and the mail between this port and San Francisco, via Chagres and Panama. Several large steamers are now on the way round, to take their place in the line from Panama to San Francisco, and in a short time we shall have two or three more on the line between this city and Chagres."

The landowners of the world are the great capitalists. The exchangers are the small ones, and yet they and their machinery absorb the chief part of the products of the land, which therefore yields but small return to the labour employed in its preparation for production. Almost everywhere throughout this country it is of small value, rarely exceeding the cost of fencing and buildings. That it may be otherwise, and that landowners may grow rich, it is required that they bring the loom to the cotton, and the anvil to the food, instead of sending the mass of cotton and food, year after year, in search of the loom and the anvil.

How rapidly their capital is capable of accumulating is a lesson that the mass of the farmers and planters of the Union have yet to learn. The first settlement of land involves a large amount of labour; but here, as in many other cases, it is the first step that is the most costly. The land cleared, the farm enclosed, the house built, and the road made, the cost of transportation still absorbs so large a portion of the product that the whole has little value. The making of a railroad doubles it, but the quantity of cloth or iron that can be obtained for wheat or cotton is yet so small that the land has still but little value. To bring the furnace or the cotton mill to the spot, and thus to make a market on the land for the products of the land, requires an amount of labour that is absolutely insignificant compared with the amount already expended, and yet it doubles the value of all around. The sole cause of the difference in the value of land anywhere—quality being equal—is to be found in the proximity to, or distance from, market.

Let us now suppose that during the last twenty years we had annually appropriated a small part of the labour that has been wasted on the road, and a small portion of the food and cotton that have been lost in distant markets, to the building of furnaces and the erection of cotton mills, and that the Southern States now possessed a hundred of the former, each capable of producing 5000 tons of iron, and rolling mills to convert it into bars, and the latter capable of converting into cloth 500,000 bales of cotton, and that the spare labour of their hands had been employed in grading roads upon which they had been for years laying the bars produced in their own furnaces and mills, and see what would be the result. Throughout the whole South there would have been a market at hand for a large portion of their products, while every part would be enjoying facilities for transporting its surplus food or cotton to distant markets at one-fifth of the present cost, and thus the land of every part would have been acquiring value, to an extent almost incalculable. The planting States have 400,000,000 of acres, and the addition of ten dollars an acre to the present value would amount to four thousand millions of dollars, while the cost of building furnaces, rolling-mills, and all other of the machinery necessary to have covered those States with roads, and filled them with machinery to enable them to convert into cloth as much cotton as would free them from all *dependence* on the movements of distant markets, making them independent, would not have been fifty millions, and yet, large as it may seem, the return would have been an augmentation of capital counting by thousands of millions.

An addition of one dollar an acre in the annual value, or rent, of a plantation, would add more than ten dollars an acre to its value. The farmer now sends his corn to market and brings back twenty cents, yet the consumer pays fifty. He brings back iron that costs him 300 bushels per ton, yet the producer of that iron obtains but 25. Had the iron and cotton manufactures been allowed to develope themselves throughout Virginia, Tennessee, Alabama, and other of the Southern States, 60 bushels of corn, or half a bale of cotton, would this day pay for a ton of iron, and if that were the case, what would now be the value of land? Would it not be greater

than at present by more than twenty dollars an acre? If so, would not that amount to eight thousand millions of dollars? It is almost inconceivable how trivial is the amount of capital required to double, treble, or quadruple the value of land, after the first and most expensive process, that of the first occupation, has been performed.

Let us now look to the state of things in England. The great field of employment for capital is the land. The number of acres in the United Kingdom is sixty-four millions. An expenditure of labour to the extent of only twenty shillings per acre would absorb the enormous sum of three hundred millions of dollars, and an average of three guineas per acre would absorb one thousand millions; whereas the whole capital employed in the cotton manufacture is but thirty-four millions of pounds,* or about one hundred and sixty millions of dollars, and that invested in shipping is but little more. Now, if we suppose one-half of the cotton machinery to be for the domestic trade, and the other half for the foreign, and one-half of the navigation to be for home purposes, including the procuring of tea, coffee, sugar, silk, &c., for the home market—and the other half to be for other purposes, the result will be that the market for capital provided by the foreign trade is but one-sixth of what would be required for agriculture, at only three pounds per acre. If we take the average duration of ships and machinery to be ten years, we have an annual demand by the foreign trade for three millions only, being equal to less than one shilling per acre annually invested in the improvement of land. No one who is familiar with the condition of Irish agriculture, and of a large portion of that of England and Scotland, can doubt that the expenditure of twenty times that amount in the gradual improvement of cultivation, and in the improvement of communications would be attended with a large return. Land, however, is everywhere centralized in the hands of great owners, and cultivated by great farmers; and the consequence is, that capital does not find employment in its improvement, and has to seek a vent in manufactures and commerce, which, together, afford a field so small, that competition is great and the rate of profit is very low.

The savings of Ireland are forced into England, because of the absence of all modes of local investment. From 1821 to 1833, no less than ten millions of pounds were thus transferred; and later statements show that the course of events from that time to the present has been nearly the same.

Of the deposits in the Scottish banks, a large portion is habitually invested in the funds; and thus, local investment being prevented, there is a constant pressure upon the centre, which deprives the capitalists, great and small, of remuneration.

The natural consequence of this absence of facilities for applying capital at the places at which it is owned, is the accumulation of large quantities in London, for which a market is to be sought at low rates of interest. Foreigners are then invited to borrow money—that is to say, to buy cloth and iron on credit—and then when by this process the unemployed capital has been scattered to different parts of the earth, there comes a crisis, and the debts are called in, with bankruptcy to the debtors of England, and wide-spread ruin among the merchants of England. Such is the history of the period from 1835 to 1842, ending in bankruptcy and repudiation. Such is the history, so far, of the tariff of '46. We have bought from thirty to forty millions of dollars of goods on credit, and the day of payment must come.

By a succession of operations of this kind all the customers of England

* McCulloch's Statistics, Vol. I. p. 78.

had been ruined, and there remained, in 1842, no foreign country that could be trusted. Capital appeared superabundant. Interest was very low, and there appeared no prospect of improvement. Every thing was prepared for a great home speculation, and the railroad soon became the hobby of the day. It was a great lottery, in which peers and paupers, bankers and half-pay officers, clergymen and pickpockets, bought tickets, all certain of drawing prizes. Five thousand miles of road have been made, at a nominal cost of £148,000,000,* but the larger portion of this vast sum has been merely a transfer from the pocket of one gambler into that of another, as may be seen from the following statement. The mere Parliamentary expenses† of the Blackwall railway amounted to, ... *per mile*, $70,000

Those of the Manchester and Birmingham to	"	25,000
And those of the Eastern Counties' road to	"	23,000
The amount allowed for land by the Manchester and Birmingham, was	"	80,000
Eastern counties	"	75,000

In this manner, the cost of the works executed was swelled to $250,000, $300,000, $400,000, and in one case to $1,400,000 per mile, the consequence of which has been that while the designing few have been enriched, the many have been ruined, and England is covered with the wrecks of this disastrous speculation, which owed its existence to the fact that the whole policy of the country tended to force capital into commerce and manufactures, which afford the smallest field for its employment, and to drive it from agriculture, the only one that affords a field constantly enlarging, and in which an almost unlimited amount of labour and capital might be employed at a constantly increasing rate of return.

The manner in which the system operates upon the moneyed capitalist here is now to be examined. In 1835, as we have seen, the natural outlets for capital were closed. We ceased to build mills, furnaces, or rolling-mills, and the building of ships and houses was diminished. The necessary consequence of this blocking up of capital was, that the price of dividend-paying stocks rose, and this produced a desire to create new stocks with the then idle capital. Roads and canals were commenced at the west and south-west, banks were created, and the capitalist was led to believe that he was to obtain ten or fifteen per cent. per annum for the use of the means that he thus placed under the control of strangers. The day of settlement, however, arrived. England claimed payment for the cloth and iron; but the means by which she might have been paid were scattered to the four winds of heaven, invested in unproductive roads, and in banks that were ruined by the failure of their debtors; and *thus were wasted as many millions as would have built furnaces to produce quadruple the iron we ever yet have used, and converted into cloth all of the cotton we then produced.* The mass of smaller capitalists were ruined, but the few were made rich.

We are now moving in the same direction. Money is said to be cheap; that is, there is much in bank at the credit of depositors, for which they are receiving no interest. The papers of the day informs us that Western city stocks and bonds are coming into demand; and here we have the beginning of a movement similar to that of 1836. In a little time it will be judged expedient to create banks at a distance, and then a little while and England will claim payment for the cloth and iron we are now buying on credit, and then will be re-enacted the scenes of 1842.

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* Herapath's Railway Journal, quoted in North British Review, August, 1849.

† The Parliamentary expenses of 1845, '6, and '7, were upwards of £10,000,000, or $50,000,000.—*Ibid.*

If we desire to know who are the persons from whom is derived the power thus to derange the movements of the world, it is needed only to look at the prices of cotton and yarn between the periods of 1844 and 1848, as shown in a former chapter. The farmers and planters of the world first give away their products, then borrow a part of them in the forms of cloth and iron, and when ruined by the operation are denounced as bankrupts and swindlers.

The well-understood interests of the capitalists of all nations are in perfect harmony with each other. Whatever tends to diminish production in one, tends to diminish the return to capital in all. The British system is "a war upon the labour and capital of the world;" upon her own as well as that of other nations. Its effect is to keep the return to the capitalist at a very low point, and often to deprive him altogether of return, and all because it tends to compel the labourer to underwork the Hindoo and the Russian, and to sink him to their level. Therefore it is that labourers and capitalists of other nations are forced to resort to measures of protection. The immediate effect of the adoption of efficient and complete protection, as a national measure, would be the transfer to this country of an immense body of capital in the form of machinery, followed by a gradual rise in the rate of profit abroad, which would tend to attain a level with our own. *That* capital, once here, could not be reclaimed. Like the men we import, it would stay, and the effect that would follow necessarily from its transfer would be an increased import of men—of all, the most valuable species of capital, though now, in Europe, the most despised.

To attain perfect freedom of trade, we need to raise the labourers and capitalists of Europe to a level with our own. The colonial system tends to depress and destroy both.

THE POWER OF FASCINATION IN SERPENTS.

THERE is a very general opinion, which has been adopted, even by some eminent naturalists, that several species of serpents possess the power of fascinating birds and small quadrupeds, by fixing their eyes upon the animal, so that the poor victim is unable to escape from his formidable enemy. Dr. Barton, of Philadelphia, published, in 1796, a "Memoir concerning the fascinating faculty which has been ascribed to the Rattlesnake, and other American Serpents," in which he maintains that this supposed power of fascination does not exist, and offers some ingenious explanations of the origin of what he considers a popular mistake. Our readers will, we think, be interested by an extract or two from this work:

"In conducting my inquiries into this curious subject, I endeavored to ascertain the two following points, viz., first, what species of birds are most frequently observed to be enchanted by the serpents? and, secondly, at what season of the year has any particular species been the most commonly under this wonderful influence? I supposed this would furnish me with a clue to a right explanation of the whole mystery.

"Birds have an almost uniform and determinate method of binding their nests, whether we consider the form of the nest, its materials, or the place in which it is fixed. Those birds which build their nests upon the ground, on the lower branches of trees, and on low bushes (especially on the sides of rivers, creeks, &c. that are frequented by different kinds of serpents,) have most frequently been observed to be under the enchanting faculty of the Rattlesnake, &c. Indeed, the bewitching spirit of these serpents seems to be almost entirely limited to these kinds of birds. Hence we so frequently hear tales of the fascination of our cat-bird, which builds its nest in the low bushes, on the sides of creeks, and other waters, the most usual haunts of the black snake and other serpents. Hence, too, upon opening the stomachs of some of our serpents, if we often find that they contain birds, it is almost entirely those birds which build in the manner I have just mentioned.

"The Rattlesnake seldom, if ever, climbs up a tree. He is frequently, however, found about their roots, especially in wet situations. It is said that it is often seen curled round a tree, darting terrible glances at a squirrel, which after some time is so much influenced by these glances, or by some subtle emanation from the body of the serpent, that the poor animal falls into the jaws of its enemy. Is the animal's fear and distress a matter of any wonder? Nature has

taught different animals what animals are their enemies; and as the Rattlesnake occasionally devours birds and squirrels, to these animals he must necessarily be an object of fear. Sometimes the squirrel drives away the serpent, but occasionally approaching too near his enemy,

[Baltimore Oriole defending her Nest from the Black Snake.]

he is bitten or immediately devoured. These hostilities, however, are not common.

"In almost every instance, I have found that the supposed fascinating faculty of the serpent was exerted upon the birds at the particular season of their laying their eggs, or of their hatching, or their rearing their young, still tender and defenceless. I now began to suspect, that the cries and fears of birds supposed to be fascinated originated in an endeavor to protect their nest or young. My inquiries have convinced me that this is the case.

"I have already observed, that the Rattlesnake does not climb up trees; but the black snake and some other species of the Coluber do. When impelled by hunger and incapable of satisfying it by the capture of animals on the ground, they begin to glide up trees or bushes upon which a bird has its nest. The bird is not ignorant of the serpent's object. She leaves her nest, whether it contains eggs or young ones, and endeavors to oppose the reptile's progress. In doing this, she is actuated by the strength of her instinctive attachment to her eggs, or affection to her young. Her cry is melancholy, her motions tremulous. She exposes herself to the most imminent danger. Sometimes she approaches so near the reptile that he seizes her as his prey. But this is far from being universally the case. Often she compels the serpent to leave the tree, and then returns to her nest.

It is a well-known fact, that among some species of birds, the female, at a certain period, is accustomed to compel the young ones to leave the nest; that is, when the young have acquired so much strength that they are no longer entitled to *all* her care. But they still claim some of her care. Their flights are awkward, and soon broken by fatigue: they fall to the ground, when they are frequently exposed to the attacks of the serpent, which attempts to devour them. In this situation of affairs, the mother will place herself upon a branch of a tree, or bush, in the vicinity of the serpent. She will dart upon the serpent in order to prevent the destruction of her young; but fear, the instinct of self-preservation, will compel her to retire. She leaves the serpent, however, but for a short time, and then returns again. Oftentimes she prevents the destruction of her young, attacking the snake with her wing, her beak, or her claws. Should the reptile succeed in capturing the young, the mother is exposed to less danger. For, while engaged in swallowing them, he has neither inclination nor power to seize upon the old one. But the appetite of the serpent tribe is great: the capacity of their stomachs is not less so. The danger of the mother is at hand when the young are devoured; the snake seizes upon her; and this is the catastrophe which crowns the tale of fascination!

"Some years since, Mr. Rittenhouse, an accurate observer, was induced to suppose, from the peculiar melancholy cry of a *red-winged maize-thief*, that a snake was at no great distance from it, and that the bird was in distress. He threw a stone at the place from which the cry proceeded, which had the effect of driving the bird away. The poor animal, however, immediately returned to the same spot. Mr. Rittenhouse now went to the place where the bird alighted, and, to his great astonishment, he found it perched upon the back of a large black snake, which it was pecking with its beak. At this very time the serpent was in the act of swallowing a young bird, and from the enlarged size of the

reptile's belly, it was evident that it had already swallowed two or three other young birds. After the snake was killed the old bird flew away. Mr. R. says that the cry and actions of this bird had been precisely similar to those of a bird which is said to be under the influence of a serpent. The maize-thief builds its nest in low bushes, the bottoms of which are the usual haunts of the black snake. The reptile found no difficulty in gliding up to the nest, from which, most probably in the absence of the mother, it had taken the young ones; or it had seized the young ones after they had been forced from the nest by the mother. In either case the mother had come to prevent them from being devoured."

ON THE FORM OF FARM-HORSES.

THERE is scarcely a subject on which there prevails an impression more erroneous and vulgar, than in respect to the *points that constitute value in the form of "Horses for all work!"* Many men judge of horses as they judge of beef cattle—seeking to get the greatest weight of flesh and fat for their money, whereas, the object should be strength and spirit; and then, the less flesh and fat the better.

The following corresponds so well with what we have often said on the same subject, that once for all we may commend it to every farmer's attention. It applies to other countries and societies besides the English. True, for heavy draft, you want *"weight in the collar,"* but that is only another word for wanting strength.—*Edit. P. L. & A.*

All intelligent scientific observers have stated their opinion of the very undue preference that has been constantly given to the *heavy carcases of the stallions for farm purposes* that have been exhibited at the shows of the Royal English Agricultural Society, since the commencement of that institution; and it must be acknowledged that the observation is very just and true, and appeared most conspicuously at Newcastle in 1846, and at Norwich in July of the last year. The first prizes were awarded to short, heavy, fat carcases, wherein the only properties were weight of offal and an abundance of muscular fibre, loading every exertion and encumbering every step of the animal; and at their sides have stood the lengthy, active carcases that befit the work of the farm, and the spirit that moves and impels the whole machinery. There cannot possibly be a greater mistake than having heavy fat animals for the purposes of the farm. The very first point of all superior breeding is, to get quit of the superfluous offal, both in fattening animals, and in those for the use of draught and the road. In the former case, the articles are useless to the butcher; and in the case of horses, the animal is burdened with a superfluous weight, which promotes perspiration, and debilitates the muscular action. The body of a farm-horse should be comparatively light, round—the offal must not show any suspension below the level of the fore ribs, but rather rise upwards. The thighs must be deep and sinewy, and the legs flat in the bone, and little hair at the heels. The neck long, lofty, and well arched; the head small, and tapering to the muzzle. The whole animal should be a "racer," enlarged to the size that is capable of bearing the burdens and fatigues of farm-work. Very widely different are the figures to which the prizes are given. The sole object seems to have heavy fat carcases fit for the shambles, without any regard to spirited action or quickness of step. Heavy bodies are killed by their own movements, and by the effervescence that takes place in such a collection of fleshy materials. Muscle and not fibre is required in the horse, and the latter must be present only in the quantity that is sufficient to bind the muscular frame in the due elasticity and vigour. Any greater quantity only creates a burden, and forms a useless appendage. The best farm-horse would be got by a cross between the largest blood-horse and the choicest country mare that can be found. The size must be large on both sides, and the figure handsome. The progeny will possess both strength and action, which when combined form the "ne plus ultra" of all animal perfection that is meant for the purposes of exertion. Such an animal will wonderfully contrast the prizes of our agricultural shows; but of the side of superiority no doubt would for a moment remain. *D. J.*, 1849.

Quality of Manure.—It is generally understood that the following is the order in which domestic animals stand as regards the quality of their manure, beginning with the best:—The pig, horse, sheep, fat ox, store cattle, milch cow; but it will easily be understood that the quality of the manure must depend upon that of the food. The elements of bacon, taken from the ordinary food of fatting pigs, you will at once see must have something more valuable as manure than that which is left of Grass when the elements of milk are removed from it.

COMPARISON OF GUANO WITH OTHER MANURES.

BY DAVID BARCLAY, M. P.

To W. MILES, ESQ. M. P.

My Dear Sir: The very extensive use of Guano as a manure, and the prospect of very large supplies from Peru and the West Coast of Africa, induced you to recommend to the Council of our Society that some of its members should undertake to test the relative value of the different kinds, including Potter's artificial Guano, as compared with farm-yard manure; and Humphrey's compound was subsequently proposed to be tried at the same time. I undertook, for one, to make these experiments. We were instructed to sow Skirving's Swede, and to apply 20 tons of farm-yard dung to the acre, 3 cwt. of Guano, and such quantities of Potter's Guano and Humphrey's compound as the proprietors might desire.

The land which I selected for making these experiments is a light, flinty loam, of uniform quality, with a chalk subsoil. Long strips of an acre each were measured with exactness, and admitted of 16 rows of plants in each strip, at the distance of 26 inches between the ridges. Four acres were drilled on the 22d of June; the fifth acre, with Humphrey's compound, was delayed for want of seed till the 26th. Instead, however, of 20 tons of dung, as proposed, only 12 tons were applied; of the African and Peruvian Guano, and of Humphrey's compound, 3 cwt. each; and of Potter's artificial Guano 4 cwt. by his desire: all were mixed with 9 cwt. of ashes, and drilled in with the seed on the Scotch system. The 5 acres were twice hoed. About the middle of January, 1845, 2 entire rows out of the 16 in each strip were raised, trimmed, and weighed, and the weights, multiplied by 8, must have given the weight per acre with accuracy, as, owing to the great length of the rows, no material departure from exact results could take place. The following table will show the cost of each manure, the produce per acre, the value estimated at 15s. per ton, also the cost of each manure, and its application per ton of roots.

The long drought which we experienced will account for the small produce per acre, and may possibly have exercised a greater influence on one description of manure than on another; I cannot, therefore, consider my experiments so decisive of the relative value of the manures as if the season had been more propitious: but should the trials undertaken by others correspond in their results with mine, information will be elicited which may be useful to the agricultural body. It was remarked that the drought appeared to have the most influence on the acre manured with dung, turning the leaves more yellow than on the other strips dressed with Guano; and until the weights convinced us of our mistake, we were under a strong impression that the guanos had beaten the dung. There remains for us to learn the value of these manures upon the succeeding crop of barley, for which purpose the 5 acres will be carefully distinguished, and the produce of each accurately measured.

I remain, sir, yours, &c. &c.,
DAVID BARCLAY.

Eastwick, February 12, 1845.

ACCOUNT OF EXPERIMENTS *as to the relative Value of Farm-yard Manure, African Guano, Peruvian Guano, Potter's Guano, and Humphrey's Farmers' Compound, conducted on Eastwick Farm, in the County of Surrey.*

No.	Description of Manure.	Quantity used per Imperial Acre.	Cost of Manure, Carriage, and Application.	£ s. d.	Produce of trimmed Swedes per Acre.	T. cwt. qr. lb.	Value of Produce at 15s. per Ton.	£ s. d.	Cost of Manure and Application per Ton of Swedes.	s. d.
1	Farm-yard..	12 Tons.....	At 5s. ..... Carriage, ... Spreading,...	3 0 0 1 4 0 0 4 0 4 8 0		9 7 3 20		7 1 0		9 4
2	African Guano...	3 Cwt..	At 6*l.* 10*s.* per ton,.. Sowing,....	0 19 6 0 2 0 1 1 6		8 2 0 0		6 1 6		2 8½
3	Peruvian Guano..	3 Cwt..	At 10*l.* 10*s.*... Sowing, ...	1 11 6 0 2 0 1 13 6		8 0 0 0		6 0 0		4 2½
4	Potter's Guano...	4 Cwt..	At 12*l.*..... Sowing, ...	2 8 0 0 2 0 2 10 0		8 17 2 8		6 13 2		5 7½
5	Humphrey's Farmers' Compound.....	3 Cwt.	At 12*l.*, ... Sowing, ...	1 16 0 0 2 0 1 18 0		5 17 3 0		4 8 3¾		6 6

ON THE MISMANAGEMENT OF STABLE-DUNG MANURE, ESPECIALLY AS REGARDS EXPOSURE TO RAIN.—Whilst, at a vast expense, the farmer is importing bones from the shores of the Black Sea, nitrate of soda from South America, guano from the coast of Peru and from the African coast, he is, in too many instances, negligent of the manure that his stable and stalls supply. This negligence has been pointed out, and emphatically dwelt on, by every recent writer of authority on Agriculture. As regards exposure to rain, and the injurious effects of it on the kind of manure just alluded to, examples of it, in this part of England (Westmoreland), where an unusual quantity of rain falls, are of every-day occurrence, and almost every where to be met with: the instances of neglect constitute the rule; of care and attention, the rare exception to the rule. The farm-steadings here are commonly on declivities; the dung-heap is usually placed on a declivity, often by the side of a road, and, in consequence, after every shower of rain, the water that runs off, percolating through the manure, robs it of some of its most valuable ingredients, especially its soluble salts, and soluble animal and vegetable matter, tending to starve the fields and pollute the roads. I have had the curiosity to collect portions of such drainage, and subject them to examination; and I now propose to give the results, as they show, in a very marked manner, the injurious effect, and how great is the loss to the farmer in consequence. The first portion collected was from a heap of stable-dung, fresh from the stable just before a heavy fall of rain, the accompaniment of a thunder-storm, nearly an inch falling in three hours. The water which ran from the dung-heap was of the color of a weak infusion of coffee, of sp. gr. 1002, to pure water as 1000. With the peculiar smell of stable-dung, it had a just perceptible smell of ammonia, which was rendered more distinct by the addition of lime. Under the microscope, it was found to contain, besides a fine granular matter, and many minute vegetable fibres and scales, particles resembling grains of pollen, and two or three different kinds of animalcules. Evaporated to dryness, it yielded 2·6 per 1000 of brown matter, which partially deliquesced on exposure to a moist atmosphere; emitted a very faint smell of ammonia when mixed with lime, indicating that in the process of evaporation, most of the ammoniacal salt had been expelled, and was therefore carbonate of ammonia; and when incinerated afforded as much as 51·6 per cent of grey ash—48·4 per cent. of the extract having been destroyed by the fire, which may be considered as animal and vegetable matter. The ash was found to contain the sulphuric, phosphoric, and carbonic acids, and chlorine, with potash, soda, lime, and magnesia, chiefly in the form, it may be inferred, of carbonate of potash, phosphate of lime, sulphate of lime, sulphate of magnesia, and common salt. The proportional quantity of the sulphate of lime was large, as was also that of the fixed alkaline salts, whilst that of the phosphate of lime and the magnesian salt was small. The next specimen examined was from a much larger and older dung-heap, after a fall of 1·12 inch of rain in about 12 hours. The fluid was of a darker brown than the preceding, very similar in its appearance under the microscope, of higher sp. gr., viz: 1008, and yet less rich in ammoniacal salts, for when mixed with lime, it gave only a very faint smell of ammonia; and its extract obtained by evaporation, when mixed with lime, had no smell of the volatile alkali. It yielded, on evaporation, 10·4 per 1000 solid matter, similar generally to that obtained from the first portion in its qualities, abounding, in like manner, in salts, and those of the same description. The third specimen collected for examination was from the same dung-heap, after a fall of 2·79 inches of rain, in 24 hours. It differed so little from the preceding, that it is not necessary to describe it particularly. As might have been expected, it was more dilute, its sp. gr. being 1004. The last specimen I shall notice was one procured from the same dung-heap, after four days of dry weather following the heavy rain last mentioned. It was oozing out slowly in small quantity; was of a dark brown hue, nearly transparent, and almost destitute of smell. Under the microscope it exhibited a few particles and fibres, a very few minute crystals, without any animalcules. I had expected to have found it a concentrated infusion of the dung-heap, and, as such, of high specific gravity; but it was otherwise; its specific gravity exceeded very little that of the preceding, and was less than that of the second portion, being only 1005, leading to the conclusion that the manure was nearly exhausted of its soluble matter. The weather, during the four days without rain, was comparatively cold for the season (it was in September), with a northerly wind—the thermometer, even by day, below 58°, and at night once or twice approaching the freezing point. This low temperature must have checked or put a stop to fermentation, which, in its turn, might have prevented the further formation of soluble matter. The infusion mixed with lime indicated the presence of ammoniacal salts; it emitted a pretty strong smell of ammonia; and, judging from the effects of other reagents, its composition was very similar to that of the preceding portions; it probably contained a larger proportion of vegetable matter, humus and humic acid, than the earlier drainings; it gave a very copious precipitate with the acetate of lead. The bearing and application of these results hardly require to be pointed out. As the drainage of the dung-heap exposed to rain contains some of the best—the chief ingredients of active manure, (excepting always the insoluble phosphates,) it follows, that the more the dung is exposed—the more it is subjected to the washing and percolation of rain-water—the greater must be its loss, the poorer and more exhausted it must become; and that shelter from rain is essential as a prevention; such a shelter as can only be well secured by a shed, under which the manure, if too dry, may be watered with the liquid that may have run from it, received into a tank; and be subjected to such treatment, from admixture or otherwise, as has been found by experience likely to render it more efficient. These results, moreover, I need hardly remark, are perfectly in accordance with the experience of intelligent farmers, in many instances on record, of the extraordinary fertilizing effects of irrigation with waters—the washings and drainage of the farm-yard and dung-heap.

[John Davy, M. D. in the Edin. Phil. Journal.—The Oaks, Ambleside, Oct. 12, 1844.

MANURE FOR ONIONS.—For the information of "J. C. C.," of Exeter (p. 225), I beg to say that last year I had one of the finest crops of Onions I ever saw; they were cultivated as fol-

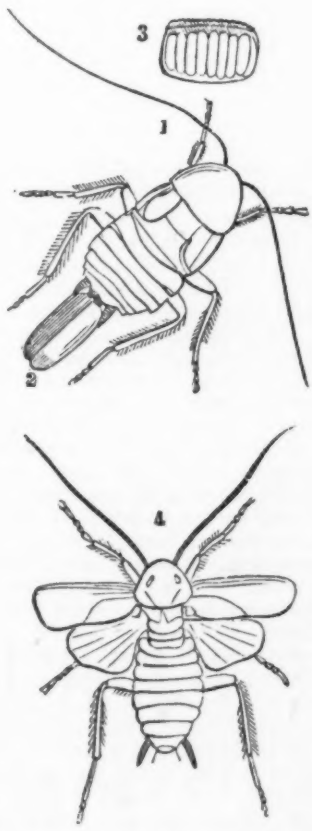
lows:—The ground (which is a stiff loam on the lower oolite), was ridged up before winter. In the middle of March the ridges were levelled, and about 3 inches in thickness of compost was spread and pointed in so shallow as to be only barely covered with earth. The seed was immediately afterwards sown in drills 9 inches apart, and between every five rows was an alley 18 inches in width. Waterings were frequently applied during the early growth of the crop; and it was twice watered with water in which guano was dissolved. The compost consisted of about one-third well-rotted old hot-bed dung, one-third old night-soil, and the remainder of wood-ashes, and black woollen manure from a clothing factory in equal quantities; the latter contained a considerable quantity of oil. The whole had been well mixed together some months before it was applied. [Cultor.

From the London Gardeners' Chron. June 21, 1845.

ENTOMOLOGY.—*The Cockroach, or Black-Beetle (Blatta orientalis).*—This too well-known insect sometimes overruns dwelling-houses, warehouses, mills, and bakehouses, and even ships at sea, to an extent which renders them almost untenable. The same species which infests our habitations is also a complete pest in Russia and Finland, and has made its way thence into Sweden. The Cockroaches are very active creatures, and being nocturnal, exceedingly voracious, omnivorous, and endowed with a surprising fecundity, they become a great annoyance where they take up their quarters. When in excess, their scent is very sickly and disagreeable, and besides defiling whatever they touch in the kitchen or larder, they will nibble the leather of boots and shoes, the binding of books, and even wearing apparel, especially if they be old and dirty. The casks of biscuits and cheese on board ships, are greatly injured by the inroads of these vermin; this, however, is frequently the work of another species, the B. Americana, which is fortunately confined at present to the storehouses along the banks of the Thames; and a smaller species named B. lapponica* is equally destructive.—Even man is not secure in his person from their assaults, for in the West Indies the larger species have been known to eat the toes and fingers to the quick during the period of sleep, and after death they will prey upon the human body like vultures, as may be seen when the charnel-houses at Naples are opened for the daily reception of the dead!

It is undeniable that Cockroaches delight in warmth, preferring kitchen grates, bakers' offices, mills, &c., and we never meet with them during the Winter or cold months of Spring, and although it is impossible to ascertain from what country the B. orientalis was first imported, it no doubt has been migrating from a hotter climate than our own; in all probability it came from the East, and such seems to have been the opinion of Linnæus, from the name he assigned to it. Cockroaches also detest the light, and for that reason we seldom see them in the day time, and as soon as a candle is introduced into a dark kitchen, they scamper off into holes and crevices to hide themselves.

The males have wings, of which the females are destitute; indeed they do not require them, as their province is to rear their young: their bodies, moreover, are often so large and heavy that they would stand in need of much more ample organs of flight than their male companions, which cannot often use them, for I never saw one flying. The females are frequently seen moving about with a large oval mass of eggs, as represented at fig. 1, it is said sometimes for a week, until they can find a convenient spot to deposit them: this leathery case (fig. 2) is of a pitchy color, with a sharp serrated ridge along the back, consisting of 16 points, and on dividing one of these bags longitudinally, it will be found to contain about the same number of elliptical cells (fig. 3); each of these produces a young Cockroach, which is able to run about as soon as it issues from the egg through the serrated suture, which splits for that purpose, and from that time to its death it is feeding, growing, and passing through its different stages of larva, pupa, and imago, with very little change of aspect compared with most of the other orders of insects.



Blatta orientalis is of a deep shining chestnut brown; the orbicular head is bent down and concealed beneath the thoracic shield; the mouth is furnished with an upper and under lip, two strong-toothed jaws, and four feelers*; the eyes are kidney shaped, and excessively finely reticulated, and close to the inner margin is an ochreous membranous spot; the antennæ are like two pubescent bristles, as long as the animal, composed of numerous joints, and inserted in little cavities close to the inner margin of the eyes; the thorax forms a large shield, somewhat triangular, with the angles rounded; in the males

* Curtis's Brit. Ent., fol. & pl. 556.

* Curtis's Brit. Ent., fol. & pl. 256.

(fig. 4) there is an incurved indentation on each side of the disc with a ferruginous line down the center; the scutellum is broad and undefined; the elytra sometimes extend almost to the apex of the abdomen; they are coriaceous, elliptical, and rough, with numerous nervures, the inner edge of one lying over the other in repose, beneath these are folded the wings, which are often shorter, membraneous, with numerous branching nervures, and reticulated; the abdomen is depressed, elongate-ovate, and composed of eight segments; from the base of the last arise on each side two spear-shaped processes, formed of short joints, and to the under side of the same are attached two slender curved appendages; the six legs are strong and longish, the coxæ and thighs are stout; the tibiæ are spiny; the tarsi are more slender and five-jointed, the basal joint being long, the fourth minute, and the fifth terminated by two curved sharp claws. The female (fig. 1) is generally larger, and the thorax smoother; instead of wings there is only a rudimentary elytron on each, with two broad thoracic segments between them; the abdomen is more elliptical before the egg-bag is excluded, and although it has the jointed appendages at the apex, the two little thread-like ones are wanting, and this at once distinguishes the sexes.

The female is very similar to the pupa, and indeed it seems to remain in that state, except that it has the little elytra, which are altogether wanting, I believe, in the pupæ. I may state that the egg-bags often have a hole on one side from which a parasitic fly had issued, called Evania, which possibly we may treat of hereafter.

Of all the remedies, a hedgehog, I know, from my own observations, is the most efficacious, and wool or tow dipped in spirits of turpentine and thrust into their habitations, will kill and expel them, but this unfortunately is attended with danger; sprinkling over by day the spots they frequent would be safer, and probably attended with equal success if persevered in.

[Ruricola.

One Important Cause of Non-Improvement in Agriculture.—I had occasion to visit the son of a friend of mine, at a school of great respectability in a wealthy agricultural district. The master, a very intelligent person, showed me the details of his well-arranged establishment, which was certainly a pattern in every respect. On entering the well-filled schoolroom he observed, that most of his scholars were farmer's sons. Glancing at his library I inquired what books on agricultural subjects it contained? The master seemed struck with surprise, (as if the thought of such books had never occurred to him,) and replied, "With shame I acknowledge, *not one;* but send me a list of such as you recommend, and I will immediately procure them." Now, I apprehend this case might be multiplied by a thousand or more. Can we wonder then that a youth who never heard the word agriculture at school, and who is seldom or never sent into different districts to be taught agriculture as a science, should go home to his parent, and follow his plan of farming—be it good, bad, or indifferent. In all other trades and professions an apprenticeship is considered essential to the acquirement of knowledge; but farming, the most necessary of all trades, is to be left to chance, or rather mischance. A system of uniformity is essential in making a hat, coat, or shoes—there are established educational rules for the church, the bar, and the Senate; but agriculture, the greatest interest of all, on which our very existence depends, economically and politically, is to be like a ship without a compass, tossed about by the ever-varying gale of individual opinion, without a hope of reaching the Port of Perfection. Were a youth ever so much inclined to furnish his mind with comparisons and observations of the various systems of culture in our own different counties, as well as in foreign climes, there is, under the present school system, no opportunity for his doing so; and, no doubt, he would be surprised if told that we are a century at least behind the Chinese in agricultural practice. I hope we shall soon see every school, and in fact, every farmer's parlour, possessing a few sound practical works on agriculture. I presume no man will consider he knows every thing in agriculture—if he does, it is unfortunate for him. Little as I am acquainted with the subject, I am daily convinced that it is full of interest, and of such extent that a lifetime of study and practice would find us on the wrong side of perfection.—*I. J. Mechi's Letters on Agricultural Improvement.*

Bones and Sulphuric Acid.—Mr. Kendle favoured the Council with the following communication:—

"*Fordham, Downham Market, May* 3, 1845.

"I perceive the trials which were made last year with bones and sulphuric acid are creating more and more interest as the Turnip season approaches; I have great pleasure, therefore, in forwarding you, and shall feel obliged by your laying before the Council, an experiment I made upon an acre of fen-land for coleseed. I put two bushels of bone-dust, not ground very fine, into a tub, with 70 lbs. of acid, and added 140 lbs. of water; it was all well stirred together, remained in the tub 24 hours, and then mixed with cinder-ashes in sufficient quantity to make it drill. I tried it by the side of bones at the rate of 8 bushels to the acre, mixed also with ashes; the superiority of the former was most striking, more particularly during the two first months. I may add, I left a few drills without any manure, which of course were throughout the season conspicuously bad. In cost there was little saving, but perhaps I ought not to have given 2*d.* a pound for the acid. I was so well pleased with the result of last year's trial, I am quite disposed to use them again: it is particularly of a cheap rate.

A SKETCH OF BELGIAN HUSBANDRY.

THE farms in Flanders are small, the average size being not more than fifty imperial acres. Some are held on lease, others are not. The terms vary from three to fifteen years, some multiple of three as far as fifteen being the duration of a lease. In some the tenants have it in their power to quit at the end of every third year, while the landlord cannot put him away till his lease is out. It is impossible to say what the average rent of the farms is; but so far as I could ascertain, it may be stated at 30s. the imperial acre, for the best soils, exclusive of burdens, which are generally one-fifth of the rent.

The farmers of Belgium are a hard-working class of men—in the habit of laboring their farms, and generally ignorant of every other subject but their profession. But in it truly they show rare sagacity and experience; and though unaided by, and almost despising, the light of science, they discover in some parts of their system of Agriculture a perfection to which science has never yet guided the farmers of this or any other country. When we look back to the ancient grandeur of Belgium, when its cities were the marts and factories of Europe, and consider the consequent increase of population in a country naturally unproductive, we will discover a sufficient stimulus to excite the energies of a people gifted by Nature with an indomitable perseverance and unwearied industry. This disposition, as well as its effects—their Agriculture—has been handed down to the present generation of farmers, and still manifests itself in many operations which the negligent farmer would consider unprofitable, or, at least, superfluous; and it is from this praiseworthy industry that Belgium, comparatively a poor country, is considered by strangers as unrivaled in the salubrity of its climate and the fertility of its soil, and that the great part of the kingdom is prevented from returning to its original barrenness.

The number of servants who live on the farm throughout the year may be stated at six to the fifty acres, and these are paid as follows:—The men who perform the work of plowmen and laborers receive 10s. a month with their meat, which the farmers value at 6d. or 7d. a day, thus making the full wages of a man equal to 25s. a month or £15 a year. Their food consists of boiled milk and bread for breakfast, soup or butter-milk and bread and butter for dinner, with potatoes and pork five times a week, and bread and milk for supper. The soup used is composed, according to Mr. Radcliff, of butter-milk boiled and thickened with flour or rye-bread, potatoes, salt fish, various vegetables, and eggs. They work from daylight till it is nearly dark at this season of the year, which, after deducting the hours of rest, will be about ten hours a day. In summer it is longer. The women, who are hired to live on the farm, receive about 4s. 6d. of wages less in the year than the men. It may be observed that almost all the farmers take the same food as their servants. The day-laborers, who are only employed at certain seasons, such as for weeding the crops and engaging in the operations peculiar to flax culture, receive 7d. and 8d. a day, with their meat; and boys and girls have 5d. with their meat. An ordinary working-man will live very comfortably in a town in the south of Belgium, paying £15 for victuals and £2 for the rent of one room for the whole year.

The farm-buildings are generally built in the form of a square, and consist of dwelling-house, byre, barn, stable, servants' sleeping-room, and cart-shed. The middle of the area included in the square is several feet below the level of the houses, and is admirably adapted for saving manure. The greatest cleanness prevails in every department of the steading.

The strength of horses kept on a farm is at the rate of a pair of horses to the fifty acres. And the number of animals supported altogether on the farm far exceeds anything we are accustomed to in this country. This, indeed, is one of the secrets of their farming; and we have no hesitation in saying that, in this particular, they excel the farming of any country with which we are acquainted. The keep of a horse is estimated at 20d. a day. It is generally fed during the winter on oats, straw, beans and hay; and in summer on cut grass. The horses are small, but compact, handsome, with beautiful action, and high-spirited. As no attention has been paid to the improving of their breed of cows, they are not distinguished for any excellences. They answer the purpose of the dairy, for which they are principally kept: they are generally black and white in color. After being for some years in the dairy, they are fattened or sold lean to the butcher, who is generally feeder as well as butcher. The most of the beef used in Belgium is that of these old cows. They have a practice by which they ensure the regular feeding of the calves, which they consider essential to quick fattening. Immediately after they have got their usual quantity of milk, baskets are put on their mouths, to prevent their eating anything in the interval between the feeding times. Few sheep are kept, and these are of the worst description.

The fields are small, and are divided merely by ditches. There is no such thing as a hedge or dyke enclosing a field. These, from the peculiar management of the stock on their farms, are quite unnecessary. But where thorns are used as fences, as around nurseries and gardens, the settings are put very closely together; and, after they have sprouted up a certain length, sticks are run along horizontally, and the young shoots are tied to these, so that in a short time, from the intertwining of the shoots, now grown into branches, the fence becomes quite impenetrable. Under-drainage is never practiced. Much of the soil does not require it: but to facilitate the drying of the fields, and to draw off the surface-water from the plants, a spading of earth is taken out from every furrow, and scattered over the ridge, so that, in a heavy shower, the rain-water finds a ready course to the ditches which skirt the fields.

One of the points in which the Flemings show their skill of management is the attention they pay to the working of the soil. Unless the soil has been thoroughly pulverized by repeated plowings and harrowings, they forbear from sowing any crop. To this, in particular, among

other causes, we must attribute the practice prevalent there of using small quantities of seed, and the beautiful, healthy, and equal brairds which cover the surface in spring. In many places they are not content with the mere use of the plow for this purpose, but resort to the spade also, either in giving an additional depth to the furrow, or in turning the whole soil over with this implement. In the province of Antwerp, we mentioned before that the spade was far more used than the plow for agricultural purposes.

An operation seen daily at present is the picking of the weeds from the young crops. Often the land is raked well before the workers commence their operations, for the purpose, as the farmers allege, of separating the plants, that the weeds may be more easily distinguished. But there is evidently another and more beneficial effect, the raking will have upon the crops. It will loosen any crust that may have been formed on the surface, and thus admit of a more ready access of the air to the roots of the plants and the quantities of manure which are covered by the soil, thus aiding their action by a supply of oxygen. Some may object to the raking, from its exposing the plants to the action of drouth; but the good derived from it, for the reasons stated, is more than sufficient to counterbalance any risk from drouth. After the raking, the workers go over the whole field on their knees, picking out every useless plant. This is perhaps repeated several times in the season, according to the state which the field is in. Flax costs far more labor in weeding than any other crop; and the Flemings spend double time on it from the importance of the crop. A Scotchman, ignorant of Agriculture, in passing through Belgium at this season, and seeing an extended row of women creeping on their knees among the young crops, and looking with the greatest care for injurious weeds, would be apt to extol the industry of the people, while he would accuse his own countrymen of indolence and carelessness in the minute, but no less important, points of husbandry. But he would be doing his own countrymen an injustice, in as far as he would condemn them for their non-performance of what they do in a more economical and as effectual a manner as is to be met with in Belgium; we allude to the practice of drilling grain crops, by which means the weeding of the crop is far more expeditiously accomplished than it is by the plan resorted to in Flanders. This careful attention to the weeding of the grain crops is the more necessary in Belgium, where they are all sown broadcast; the soil is of that class which encourages the growth of annuals, and summer fallow or green drilled crops form rarely a part of their rotations.

The implements used in Flanders are so simple and rude that they scarcely deserve mention. There are two kinds of plows employed; one which is held by one hand only, and is of the rudest construction; and the other, called the Walloon plow, in which the body is attached, by means of its beam, to a framework on wheels, which connects it with the horses, and regulates the different depths to be plowed. In this the mould-board is movable, and is changed at the end of every furrow from one side to the other.

The next subject of which we shall speak is the manures of Flanders; and some conception of the importance of this subject may be formed, when we mention that it regulates, not only the whole, but every individual part of the management of a Flemish farm. The first object and great aim of a Flemish farmer is to make or get manure; and to carry this into effect, nothing that can contribute in the least to increasing a dung-hill is thrown away. He cultivates food for cattle, and ties them up all the year round, that he may not lose any of the manure. He sows rape, and allows it to blossom and ripen, that he may obtain the seed for manure. His ashes-cart and urine-barrels traverse every street in a town, every by-way in the country, to collect this important necessary for his farm. It is in their management here that the farmers of Belgium excel those of every other country, and are thus enabled to extract more from the land than any other body of farmers. They act up, in short, to the true old adage that "Muck is the mither o' the meal kist." The principal manures used are farm-yard dung, urine or liquid manure, rape-cake, and ashes. Minerals are seldom, if ever used, and bones are almost unknown. I alluded before to the comparatively great number of animals kept by the Flemish farmers on their few acres. This they do principally for making manure, to enable them to carry out their system of farming. On a farm of 63 acres, 3 horses and 15 milch cows, and several heifers for supplying the stock were kept throughout the year, besides 6 cows and a few calves that were fattened yearly. In another, of 77 acres' extent, 4 horses and 20 cows, with a requisite number of heifers, were kept, besides from 20 to 30 calves being fattened off yearly; and in a third, of 88 acres, 5 horses and 20 cows, besides heifers and calves, were kept. These farms were all arable, and were situated in one of the finest districts in Belgium. Mostly every crop receives some of this farm-yard dung, which is always well rotted before being applied. One of the peculiarities of the Flemish system is, the extensive and various uses they make of the urine from the animals kept on their farms. Every one has heard of the urine-tanks of Flanders, which are to be found all over the country, at home, and in the fields. They are built in a most substantial manner, and so far under ground, that when they are covered in, the farmer is enabled to cultivate the soil over them. Contracts are generally entered into between the farmers and those in towns who have much of this at command, such as brewers, distillers, &c., who fatten animals from the refuse of their works. £2 ($10) is *commonly given for the urine of one animal for a year.* The farmer, at stated periods, conveys, by means of barrel-carts, what is collected in towns to his subterraneous receptacles at the corners of his fields, to be ready for the seed time. The crop to which it is principally applied is flax; and then they dissolve in it rape-cake, which renders it a most powerful manure. After the flax-seed has been sown and covered in, and rolled, so that the surface is made quite smooth, they proceed to apply this mixture. It is applied in the following manner:—Five men are employed altogether, two to pump, two to scatter it, and one to drive it. A rectangular piece of ground, thirty yards in breadth, is measured off across the ridge; this is sub-divided into six portions of five yards each. The field was laid off in ridges of ten yards. Six wooden vessels are filled, and placed in the middle of a ridge, at a distance of five yards from one another; so that the contents of each vessel, which is about the size of a potato firlot, is the allowance for

every fifty square yards. There is nothing in which they manifest such economy as in the saving of this material, which they prize as a most valuable assistant to their labors. Rape-cake, besides being applied, as mentioned above, with the liquid manure, is also used in a dry state. The rape is cultivated principally as a manure, and is used extensively where the cropping is very severe. Ashes are never used but as a top-dressing to clover; but the traffic which is carried on in them, between Holland and Belgium, is sufficient to form a distinct trade with a certain class of merchants in Belgium. The farmers in Belgium set a high value on them, and place so much dependence on them for the success of their clover-crop, that (I understand from what I have read) there is a current saying among them, that "He who buys ashes for his clover-crop, pays nothing; but he that does it not, pays double." It is really surprising that this manure, which has been proved to be so efficacious by a class of experienced farmers like the Flemish, has never yet been tried, or at least sufficiently tested, in Scotland. I believe some were imported in the beginning of this year by Messrs. John Mitchell & Co., in Leith; but I am not aware that they have met with the reception we would anticipate from the well-known successful results of their application in Belgium. There is nothing so much wanted at present, in the Agriculture of Scotland, as a good lasting top-dressing for clover. The failures in this crop have been frequent of late, and the effects of nitrate of soda last only with the crop to which it is applied, while sad disappointments have been experienced in the use of gypsum. But before recommending an extensive use of this material, I would suggest a few comparative trials to be made with it, gypsum, soot, and other substances; for if the failure of gypsum arose from there being a supply of it already in the soil sufficient for the growth of the plant, an application of Dutch ashes might be attended with a similar result, as the great proportion of the ingredients of the ashes are salts of lime, with the useful addition, however, of some salts of soda. Some attribute their great effects in Belgium to the lime which they contain, as few of the soils there have any amount of lime in their composition. They are applied in different quantities to the soil, from ten to thirty bushels an imperial acre.

The crops raised in Belgium are wheat, oats, rye, flax, potatoes, rape, and clover, as principal; and, as secondary, turnips, carrots, buckwheat, tobacco, and spurry. The farmers consider flax and rape the best paying crops they cultivate, and they are the most exhausting; hence the enormous quantities of manure given them.—The rape is sown in July, transplanted in September, and cut in June of the next year. The clover, which is grown for seed as well as for food for cattle, is an important crop with the Flemish farmer. He is not particular among what he sows it. We find it growing amongst flax, wheat, oats or rye. There are two varieties of rye used, winter and spring. The winter variety is almost always sown after potatoes in December, and some of it is cut green in spring, before the clover is ready for cutting. It thus answers the purpose of early tares in this country. Another crop is taken the same year, after it is cut. The ground is plowed several times for potatoes. When the last plowing is finished, the furrows of which are about seven inches wide, one man walks up one of the furrows, and, with an instrument similar to that used for picking up turnips, makes a hole, into which a boy drops the cutting of a potato.—Eight inches farther on, another potato-set is put, in making the hole for which he draws the soil over the previous setting. This he does every second furrow, so that the distance between each row of potatoes is not more than fourteen inches. One man and a boy do about 450 yards in this manner in an hour. The turnips are almost always taken as a second crop in the year. Immediately after the rye is cut, they begin to prepare the land for turnips; and, by the powerful agency of the liquid manure, a beautiful braird is obtained in a few days. The turnips have attained a pretty good size when they are pulled, and, with the potatoes, form the winter food for the animals on the farm. Carrots are often sown with flax, so that they are enabled to have two crops the same year from the land; for by the time the flax is pulled, the carrots are considerably advanced. This method of double cropping is very frequent in Flanders, and is another instance of what, by economy of manure and a judicious application of it, they are enabled to produce from the soil.

The next subject which comes naturally after this is the rotation of crops practiced in Flanders. I was prepared, before crossing the channel, to encounter some little difficulty in this subject, from having read of the great variety of rotations to be found there. Every field, Mr. Radcliff tells us, has its own rotation. But the four, five, or six years' course to which we are accustomed in this country, made me form but a faint idea of the difficulties of comprehending the Flemish course; and therefore, when I began to study them, these exceeded my greatest anticipations, and every day that I renewed my inquiries but plunged me into greater perplexities. I could perceive no fixed principle on which they founded their constantly varying rotations. The same farmer would give me one day one rotation, and the next another totally different from yesterday's, as the rotation he practiced on his farm; and were I to transcribe all the various systems I jotted down in my note-book, as those followed on farms within the narrow compass of a few miles, I would fill as many pages as this short sketch of Belgian farming would require. With such conflicting statements, and with no prospect of unraveling the mystery, I began to solace myself with the thought that the Flemings had no such thing as a rotation; that they knew the value of a change of crops each year, and therefore they practiced a succession rather than a rotation of crops. If they are rotations, it is difficult to tell where they commence and where they end; and they are, besides, extremely long. The principle they seem to go upon is, that the same crop shall not be taken two successive years from the same land. And on examining my heterogeneous mass of rotations, I have been enabled to trace out the few following facts:—That wheat and rye almost always succeed potatoes; and rye, potato wheat: the place of flax seems to be after oats, and before wheat or rye. Clover is sown with any of the principal crops. Rape seems to succeed oats or rye. I think I cannot do better than conclude this part of the subject in the words of Mr. Radcliff:

"In Flanders they would consider their industry and their manure inefficacious without the aid of a precise and well-regulated rotation hence the variety of successions which we ob

serve at every variation of the soil. They have been farmers time out of mind, rotation farmers for centuries: *there is not a cultivated acre, the proprietors of which are not matter of notoriety; and according to those properties, the most suitable succession and the most profitable application of manure have been long since resolved on, and are now invariably practiced.*"

It may not be out of place here to introduce the management of a farm in the high country, or Walloon district. The farms there are much larger than in the low country: 150 acres are there considered a small farm, and many of them are 1,000 acres in extent. The size of the farm about which I obtained most information was 200 acres. The whole of it was under the plow, but twelve acres of meadow. There were only three plows used: but twelve horses were kept, and used for farm work alone. The cause of this great number of horses is, that they never put fewer than four horses, and often six, into their wagons. They have, besides, twelve young horses of different ages, and fifteen cows, which is the whole of the stock kept on the farm. The rotation is generally potatoes, wheat, rye, oats, with clover sown with one or other of them. When we speak of this being the rotation, we do not mean that it is followed with unaltered regularity; for the most profitable crop here is wheat, which the farmer endeavors to grow on a third of his farm. They are near lime here, of which they avail themselves, by applying considerable quantities to the soil. I saw some applied as a top-dressing to young clover. Ashes are also used for the same purpose; but they are much redder in color than those I saw in the low country. The coal burnt here is always mixed with clay, to bind the pieces together, as it is all in small pieces, the largest not being larger than a hen's egg. This may cause the red color in the ashes referred to. They are not so careful of their manure as in Flanders, nor does the same attention seem to be paid to the land. Wages are much the same as those mentioned before.

This is a rough outline of Belgian farming, from personal observations there. I must admit that there is much that might be very profitably introduced and mingled with Scottish husbandry. A little more latitude and variety in our rotations would, while it would increase our productions, benefit the soil. But such a change would have to be introduced with caution, as otherwise it would shake the whole fabric of our Agriculture, which rests so firmly on its present foundation; and while we would cull out the excellences of Flemish farming, and engraft them on our own system, we would not commend it as a whole. And he who would attempt to introduce it into this country, either as a whole or in certain of its parts, would not only expose himself to ruin, but prove himself ignorant of the different states of the two countries, and of the first rudiments of good farming. P. M'L.

[Jour. of High. and Agri. Society of Scotland.

ON THE ATMOSPHERE OF STABLES.

THE frequent and violent exertions which man requires of the horse, renders it a matter of the highest importance that the animal's physical condition be as perfect as skill and attention can secure; and as there are no organs of this noble animal so severely taxed, during the performance of either fast or heavy work, as the organs of respiration, it is obvious that too much attention cannot be given to all circumstances which tend to secure perfection in the condition of that delicate apparatus which plays so prominent a part. A pure and uncontaminated atmosphere, in all respects suited to the process of respiration, is, therefore, a *sine qua non*: one cannot help, for these reasons, expressing surprise at the almost universal inattention to stable ventilation, which so lamentably prevails in even many of our first-class establishments. But there is no circumstance connected with domestic life that appears to me more extraordinary than the almost universal want of attention to scientific arrangements in the construction of modern buildings of every description, both public and private, from the largest theatre, or assembly hall, down to the cottage of the most humble peasant. It is not, therefore, wonderful that gross errors may be discovered in the tenements devoted to the accommodation of our domestic animals. That these occur to a much greater extent than many intelligent persons are aware of, I shall presently show. I hope I may confidently presume that most educated persons are aware that air once breathed by an animal is, by the simple process of respiration, converted into a deadly poison, and, therefore, should be instantly removed from its presence, and replaced by a proper supply of a pure and wholesome air. It is well known that the oxygen of the air is absorbed, and carbonic acid gas is thrown out at each expiration—a gas which neither supports life nor combustion: of the truth of this, the unhappy fate of the unfortunate sufferers in the Black Hole of Calcutta but too painfully demonstrates. I could cite, were it necessary, numerous familiar illustrations of this subject, but I have no doubt the following sample will serve to inform such of your readers as may not hitherto have given especial consideration to theories of respiration, and who are, therefore, unaware of the importance which attaches to the subject.

All have heard of the fatal accidents that frequently occur in breweries, from persons incautiously descending vats while these are surcharg-

ed with the products of fermentation. It is the carbonic acid gas which kills the individual in this case; and who is not aware of the danger of descending close, deep wells, where foul air has accumulated, and rendered the atmosphere obnoxious to human beings? Again, carbonic acid gas proves to be the baneful agent: few, perhaps, are cognizant of the fact, that if a bird be suspended from the roof of a closely-encompassed bed, the creature is speedily put to death—it is poisoned by exposure to the carbonic acid gas—the natural product of the respiration of the persons occupying the bed! Although this gas is naturally heavier than common atmospheric air, it nevertheless, when heated by the process of respiration, becomes much lighter, ascends, and occupies the space nearest the roof of the chamber where it may have been produced; so that persons near the floor, having a plentiful supply of cold air, may suffer no inconvenience, although they, most assuredly, by each act of expiration, are slowly and silently contributing to the destruction of the ill-fated victim in the cage. But the products of respiration, poisonous although they be, are the result of vital phenomena, and, therefore, cannot be dispensed with nor prevented; but the grand source of vitiation to which I am desirous to direct attention, is both removable and preventable, because it is dependent on the ammoniacal gas which is disengaged from the decomposing urine that is absorbed by the porous floors of stables. Now let me shortly describe the condition of stable-floors as these are usually (I may say invariably) constructed—and suppose we take a stall in the Piershill barracks as our text: nothing could be more unscientific than the arrangements which are here everywhere to be observed. All that seems to have been aimed at is merely to secure a hard and resisting footing for the animals, and that this may be effected at the cheapest rate, the following mode of procedure is practised:—Boulders, or irregular blocks of stone, are placed in a bed of sand, or small gravel, (I beg especial attention to this circumstance,) and it is believed that when these are made to present a fair surface, that the "job" has been creditably executed; but what are the facts? They are simply these: When the liquid manure of horses is dropped on such a floor as that which I have described, they rapidly percolate between the interstices of the irregular stones—decomposition immediately ensues, and deleterious gases are abundantly disengaged. I would, therefore, beg to press upon the attention of all whom it may concern, that the principle of rendering stable-floors impervious to moisture should never be lost sight of; without attention to this desideratum the most ingenious schemes for ventilation must be stultified! So rapidly do the component parts of urine assume the gaseous form, that it has surprised many to find, on examining an imperfect floor, that percolation has extended to so small a depth, but the true explanation of this circumstance no doubt is, that the recently-dropped urine comes in contact with materials in a high state of chemical action, which, like yeast to the wort, immediately induces a similar condition in the atoms of the recent materials, ammoniacal gas is formed, which ascends and pervades the entire apartment. The irritating ammoniacal gas I have frequently found, on going into a stable in the morning so concentrated that I could not breathe without coughing, and my eyes lachrymated as if a newly-cut onion had been hanging under my nose. Now, the products of respiration contributed but in an inferior degree to this state of vitiation. I repeat again, that it is impossible to preserve the purity of the atmosphere of a stable, while its floor continues pervious to moisture. I, therefore, cannot too strongly urge this fact upon the attention of every one who may find his stables in an objectionable and unwholesome condition; and it will be satisfactory to know that the means by which the desired improvement may be effected, involves neither difficulty nor expense.

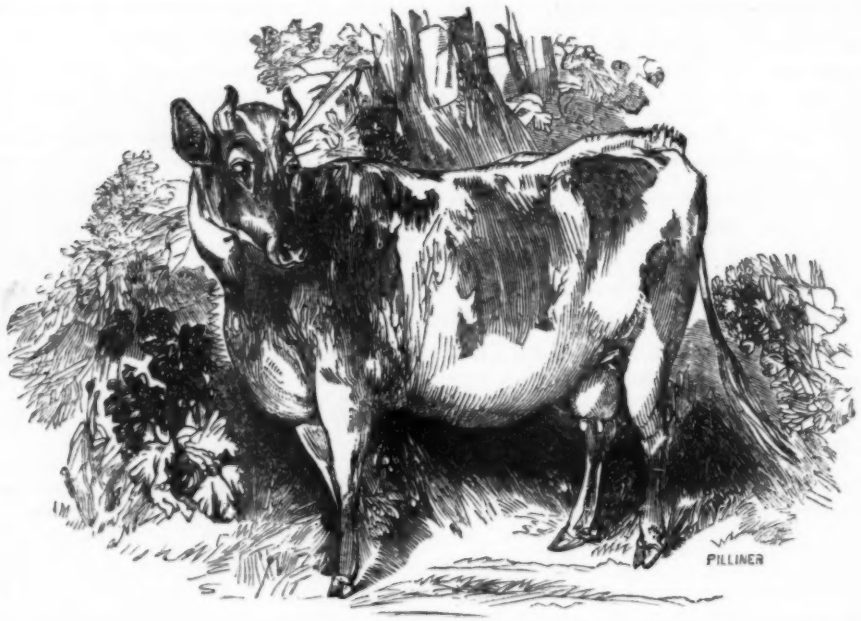
Let the centre of the causewayed stall be removed 2 feet in breadth, and 5 feet in length, measuring from the croup end of the stall. Flags of sandstone pavement, of 1 foot in breadth, 3 inches thick, and of convenient length, having the inner or central edges beveled to such an angle as that when the two are brought together there will be a space or central gutter formed like an inverted V, 1½ inch in breadth at the surface, and 2 inches deep at the apex of the inverted cone, which space must be filled with cement or pitch—a slight downward and backward inclination must be given to the paving-stones, so that whatever liquid may be dropped upon them, shall be rapidly conducted towards the hind quarters, and thence conveyed on the surface to the point in the exterior found most convenient for a tank, or reservoir, where it may be stored till required as manure. I find the making such an arrangement as I have shortly described would cost for materials about 10*s*. per stall—10 feet for each stall, and 10 feet for that part of the floor immediately behind the animal opposite his stall. A most superior article I know could be furnished by Messrs. J. Paton and Sons, of Ayr. The excellent quality of their sandstone, and the great advantages of their ingenious and powerful stone-cutting machinery gives to their establishment a peculiar claim to preferment.

I shall conclude this perhaps already too extended communication, by assuring gentlemen who may adopt such structural arrangements as I have proposed, that they will have no reason to regret their conduct; as to the pecuniary outlay which these improvements would require, you'll

"Let me whisper in their lug,
That's ablins nae vexation;"

because all that is to be done is to give their noble animals (whose faithful servitude deserve so well at their hands) credit for one year, as the following statement will clearly demonstrate.—A horse voids more than 3 lbs. of urine daily—or say—1100 lbs. per annum=21 lbs. ammonia =180 lbs. guano, 10*s*. So that he pays like a gentleman for the enjoyment of an unvitiated atmosphere.

In a future communication I will endeavor to give a popular description of the theory of ventilation, and the contrivances by which fresh air may be supplied to stables, and modes by which it should be removed when it becomes vitiated from natural causes. The necessity there is for rendering stable-floors impervious to urine appears to me so obvious, that I flatter myself no sensible man who may chance to cast his eye over this hurried and imperfect paper will hesitate for a moment in adopting some plan, which shall have the effect of rendering his stable-floors impermeable to liquids. Until this is effected, it is idle to talk about any ventilating scheme whatever; therefore, I say—Reform your Stable-Floors!!! W. D. Guthrie.



INTERESTING IMPORTATIONS OF CATTLE OF VARIOUS BREEDS.

It gives us pleasure to note some of the measures in progress for the further importation of celebrated races of foreign cattle. The importation for Mr. Colt, of an Alderney, or rather a Jersey Island cow, of which we here give a characteristic presentment, selected by Col. Le Couteur himself, and procured under every circumstance to insure purity and excellence, has already been mentioned. We are authorized to confirm the statement from memory, that she cost $160, to which may be added freight $50, as the expense of importing.

Mr. Colt had purchased a six months' calf, of the same breed, at Mr. Physic's sale, at Germantown, Pa. Thus, from the stock imported by the late N. Biddle, and those referred to, with their produce, Mr. Colt has at Paterson, eighteen cows, and heifers and calves, making probably, the largest herd of pure Jerseys now in this country.

We have not the least doubt, that the milk of his Alderney cows, measured by its richness and proportion of cream and butter, would command 8 cents a quart in New York, and the cream 50 cents. Every gentleman, keeping a cow for his own use, to have nice rich cream for his coffee or black tea, and neither is perfect without it, ought to have his Alderney, or rather his Jersey cow.

But not satisfied with his superior herd of Alderneys and Ayrshires, Mr. Colt has, we learn, procured through the kind agency of Col. Webb, our Minister to Vienna, a bull and cow of that breed of Austrian cattle, so strongly recommended by Mr. Fleichman, in the Patent Office Report for 1847.

"Agreeable," says Mr. Fleichman, "as the general impression must be, which Swiss cattle at the Marienthal Dairy makes upon the stranger, it is nothing when compared to the sight reserved here for the farmer, of the fine stock of Murzthal cows. This race combines nearly every one, if not every excellence—abundance of milk, disposition for fattening, and great strength for draught, and is raised here in its highest perfection. The full blood of this race is characterized by the small shaped head, with broad forehead and broad mouth, short and fine horns, extended body, broad back and handsome neck, high and slender tail of considerable length, fine bluish hair, big udder, and on the whole by the stately and soft entire appearance."

This description corresponds very much with a large mouse-coloured cow of splendid form, a great milker, owned by the late Henry Thompson, at Clifton. We are sure she will be well remembered, by all surviving amateurs of fine cattle and other good things, who remember the delightful re-unions we used to hold there of a warm summer's afternoon, in the hospitable shade of his piazza and hall, and in view of his beautiful grounds.

This importation of Hungarian cattle, will constitute an epoch in our history of dairy husbandry, and we trust the stock will be found to equal the description and to unite all the excellencies designated by Mr. Fleichman. How much more do those deserve to be gratefully remembered and honored who import a new race of valuable animals, or labour-saving agricultural implements, than those who import new fashions in dress, or new implements of war! But are they so?

This race of cattle is that characterized by an English author of deserved celebrity.

"This breed affords the best milch cows; they are chiefly bred in the Island (Alderney) from which they derive their name, and in the neighbouring Islands of Guernsey and Jersey. They are small sized; in colour light red or dun, mottled with white; horns short and generally curled, or what some call crumpled horn; bones fine. As fattening cattle, they have but few good points, being thin and hollow in the neck, sharp and narrow on the back, light in the brisket, and lean on the chine, with short rump and thin thighs, but their flesh is fine-grained, high-coloured, and of excellent flavour. They are also very large in the belly; but this, as well as some of the points already mentioned, is rather an advantage to milch cows. Their udder is well formed.

"Their neatness of appearance, and being exceedingly good milkers, has contributed to place them high in the estimation of most dairy men; although their shape is defective, they are generally crossed in this country (England), which accounts for the breed being but rarely met with pure. It has been supposed by some that they will thrive on any poor pasturage with the assistance of hay in winter. They certainly, like all other light stock, do not require the same support as larger animals; still, when their milk is not equal to its general quality, it is owing to the pasturage not being so rich as in their native country; which, probably, is the cause of their being thought very tender and requiring good nursing in winter."

It was from importations from the island of *Alderney*, chiefly, that this breed obtained celebrity in England for the extraordinary richness of their milk—but more recently, probably under the fostering and auspicious influence of a united Agricultural Society, of which Col Le Couteur is a leading, if not the presiding member, the breed is established in its greatest perfection in the island of Jersey. Yet it is quite probable that from whichever of these islands derived, this race of cattle will continue to pass under their original denomination of Alderney cattle. Mr. Colt was right, however, in going at once, not only to the island of Jersey, but to the fountain-head of intelligence and good faith in such matters, to Col. Le Couteur himself, and was fortunate in enlisting his careful attention in the manner we have mentioned, through his friend, General Devereux, whose heart inclines him to the amiable and patriotic, as constantly as the needle points to the pole.

The late Henry Colman, who had observed carefully and written much on the quality and produce of milch cows, in his European Agriculture says—"of all the cows which I ever saw, the handsomest—that which gave the best promise of being what a cow should be—was an Alderney, or rather improved Guernsey cow, brought from one of the channel islands, and shown at the meeting of the Royal Agricultural Society at Southampton. She was rising two years old, of moderate size, compact and well-shaped, of that yellowish dun colour which generally characterizes the breed, with a large and golden udder, ears of an orange colour in the inside, a clean and thin neck, and the bright eye of a gazelle. They are valued mostly for their milking properties, and not so much, in that respect for the quantity as for the *extraordinarily*

rich and creamy quality of their milk, in which certainly they surpass all other breeds. It is said that no animals will thrive faster when well fed, and not on milk; and their size is not always inferior. I found at Walbeck, the residence of the Duke of Portland, a herd of Alderney cows, of the size of ordinary cows, and in good condition. Few gentlemen or noblemen in England, resident in the country, are without one or more Alderney cows for the supply of their tables with cream and butter, and I never have had the slightest difficulty in instantly recognizing their produce—they are kept in some proportion, at some of the large farm dairies in England for the purpose, by mixing their milk with that of other cows of a different breed, of giving colour to the butter, and richness to the cheese; but I was informed at one of the best dairies in Gloucestershire, where forty cows are kept, that a dairy exclusively of Alderney cows "would not make good cheese, or rather would make it too rich," and that beyond a certain proportion, and that not a large one, it was not advisable to mix their milk with that of other cows. So difficult, however, is it to determine anything, that I have found other farmers to state that they have succeeded perfectly in making excellent cheese from the milk of the Jersey cows.

The improvement which has taken place in this breed in the island of Jersey, a specimen of which I have given an account of above, is most remarkable; and in their improved condition, for certain purposes, especially for the luxury of cream and butter, it would, I think, be impossible to find a more valuable breed. It is objected to their beef, that the fat of it is too deeply yellow, but otherwise it is deemed excellent in quality. Mr. Colman gives an account of two oxen of this breed fatted by Sir Charles Morgan, which weighed alive, the one, one thousand six hundred and ninety pounds, the other, one thousand six hundred and fifty."

But here are

MORE IMPORTATIONS OF THE CELEBRATED BATES' STOCK OF SHORT HORNS.

Some months since we were apprised of the intention of Mr. Morris, a wealthy and spirited farmer, of Fordham, West Chester county, New York, to embark for Europe, on an agricultural tour, and especially to examine for himself, the agriculture and the domestic animals of England. We rejoiced to learn it, because we had no doubt that his choice of such as he might select, would be guided by the desire to send home the best, without stint; and that, as we took the liberty to advise him, he would take measures, by successive supplies of the best to be picked from the best herds in England, to keep up the excellence of such as he might now procure.

The more certainly to make sure of seeing collected in one herd, many of the best short horns to be found in all England, Mr. Morris so timed his visit as to be present at the sale of the Kirkleavington herd of short-horned cattle, of which he gives the following account:—

KIRKLEAVINGTON, YORKSHIRE, *May 10th*, 1850.

To J. S. SKINNER, ESQ.,
Editor of the Plough, the Loom, and the Anvil.

MY DEAR SIR—The great Bates sale took place yesterday. It was a sight which England never has, nor never will see again, as to the extent and quality of the herd. The attendance was from three to five thousand, from almost all parts of the world. The average price was about 63 guineas, $315, the highest 205, $1010, and the lowest price for any animal that was sound was 30 guineas, $150. Mr. Collings' sale reached higher prices, I believe, but it was when the country was in a more prosperous state than it now is, and the terms of sale must have been more liberal than these were. The heirs and executors of Mr. Bates' estate are in chancery, and all business done through a receiver, who made the terms half cash down, and balance on delivery of the animals, which was to take place five or six days at the farthest from the day of sale. The risk of the animals, immediately on being struck down, was to be borne by the purchaser.

I purchased three head; and a Mr. N. J. Becar, from Smith Town, Long Island, whom

I met on board of the steamer, by my information and influence, purchased four head. I did not make my purchases until I had examined all the herds of any note in the counties of Yorkshire and Durham, which is the finest short-horned section in the world; and even then I had several *re-examinations* through Mr. Bates' herd before I made my final selection, and the only animals I bid on I purchased. If I can get a complete list of the sale before mailing this, I will enclose it to you, but I am fearful that even this letter will not be in time for the steamer of to-morrow. As I am pressed for time, I shall not be able to write more fully at present. By the next steamer I hope to be able to give you some account of the agricultural aspect of the country, *as it strikes me.*

I remain yours, respectfully,

L. G. MORRIS.

P. S.—Tuesday, 14. The above not being in time, I send you to-day the list of sale.

SALE OF THE KIRKLEAVINGTON HERD OF SHORT-HORN CATTLE.

The sale of this celebrated herd of that variety of the ox, which is justly the pride of Britain, and especially of our district whence it was originated, was held on Thursday last, by Mr. H. Strafford, of London, the editor of "The Short-horn Herd Book," in the presence of a company of upwards of 5000 persons, which included nearly every breeder of note of this variety of cattle in the United Kingdom; and, also, breeders from Belgium, and other parts of Europe, and from the United States of America. The stock brought forward, on this occasion, consisted of 48 cows, heifers, and heifer calves, and of 20 bulls and bull calves, the property of the late Thomas Bates, Esq., formerly of Halton Castle and Ridley Hall, Northumberland. To enter into the details which the importance of this auction justly merits, is, we regret, beyond our limits, at so late a period previous to our publication. The space we can possibly spare in our columns at present will, therefore, extend only to a summary of the prices for which the stock was sold, and the names of those purchasers of the lots which, from their extraordinary excellence, demand special notice; and, in doing so, we trust that the paucity of detail may not be construed into any indifference on our part in regard to the other lots in the catalogue, as we must, after the most minute inspection of every animal in this extensive herd, declare that there was not an animal which could be characterized as being either *inferior*, or even *mediocre.* The auctioneer, with great propriety, introduced the business of the sale by reading an extract from a memoir of Mr. Bates, which appeared in the *Farmer's Magazine* of January last, tracing the career of that gentleman as a breeder of short-horned cattle, and on an inspection of the stock submitted on this occasion to the criticism of the whole short-horn breeders of the day, our expectations, from the perusal of the article referred to, were in nowise disappointed in the quantity of the animals: and the result of the sale, which we give below, fully corroborates our opinion that any of the points of high pedigree, size, quality, and symmetry, has been very rarely attained. In these qualities combined, we may fearlessly assert, that the Kirkleavington cattle at Mr. Bates's death were unequalled by any herd in existence, The sale commenced with the cows, heifers, and heifer calves, and the first 20 lots in the catalogue were cows which sold at various prices, from 20 to 125 guineas, for 1034*l.* 5s., or an average of upwards of 51*l.* 14s. each, in which class the Marquis of Exeter was a purchaser of lots 1 and 6, Wild Eyes 8th, roan, calved Feb. 16, 1842, Oxford 2d, roan, calved April 20, 1839, got by Short Tail (2628), at 52 and 40 guineas respectively; the Earl of Ducie, who attended the sale in person, of lot 11, Duchess 55th, red, calved Oct. 31, 1844, got by Fourth Duke of Northumberland (3649), for 105 guineas; and lot 20, Oxford 6th, red, calved Nov. 6, 1846, got by Second Duke of Northumberland (3646), for 125 guineas; *Mr. Morris, of the United States of America, lot* 13, *Oxford 5th, roan, calved Nov.* 24, 1844, *for* 71 *guineas;* Mr. Jonas Webb, of Babraham, Cambridgeshire, of lot 14, Wild Eyes 14th, red and white, calved Jan. 24, 1845, for 29 guineas. The next lots in the catalogue were nine three-year-old heifers, which realized 802*l.* 14s., or an average of upwards of 89*l.* 2s. each, of which Mr. Champion was the buyer of lot 23, Wild Eyes 22d, roan, calved July 26, 1847, for 100 guineas; Mr. Anthony Maynard of lot 24, Wild Eyes 23d, roan, calved September 3, 1847, at 100 guineas, lot 26, Waterloo 10th, red, calved October 27, 1847, at 60 guineas; Earl Ducie, lot 27, Duchess 59th, roan, calved November 21, 1847, at 200 guineas. The following nine lots were two-year-old heifers, which sold for 547*l.* 2s., or at the rate on an average of upwards of 60*l.* 15s. each, of which lot 31, Duchess 61st, red roan, calved August 15, 1848, was purchased by Lord Feversham, for 100 guineas: Mr. Champion, lot 32, Duchess 62d, red and white, calved Oct. 10, 1848, at 120 guineas: Mr. Harvey Combe, lot 35, Cambridge Rose 6th, roan, calved December 11, 1848, at 70 guineas: and *Mr. Morris, of the United States, lot* 36, *Oxford* 10*th, red and white, calved Dec.* 30, 1848, *at* 51 *guineas.* The heifer calves under one year old were ten in number, and sold for 562*l.* 11s., or at an average of upwards of 66*l.* 5s. each, in which class Lord Feversham purchased lot 39, Wild Eyes 29th, light roan, calved August 3, 1849, at 38 guineas, and lot

43, Oxford 12th, light roan, calved August 27, 1849, at 81 guineas; Mr. Hay, of Shethin, near Aberdeen, lot 40, Waterloo 13th, roan, calved August 8, 1848, at 71 guineas: Earl Ducie, lot 41, Duchess 64th, red, calved August 10, 1849, at 155 guineas; and lot 42, Oxford 11th, dark roan, calved August 25, 1849, at 125 guineas; and *Mr. Becar, of the United States, lot* 46, *Oxford 13th roan, calved Jan.* 7, 1850, *at* 63 *guineas.* Fifteen bulls were sold for 1299*l.* 7s., or at an average of 80*l.* 12s. 6d. each, of which Earl Howe purchased lot 1, Second Duke of Oxford (9046), for 105 guineas; Mr. A. Maynard, lot 2, Duke of Richmond (7996), for 120 guineas; the Duke of Sutherland, lot 6, Euclid (9097), for 40 guineas; the Earl of Ducie, lot 8, Fourth Duke of York (10,167) for 200 guineas: *Mr. Hay, lot* 11, *Grand Duke* (10,284) *for* 205 *guineas:* Lord Feversham, lot 15, Ebor (16,184), for 90 guineas. The sale of Mr. Bates's herd concluded with five bull calves, which realized 201*l.* 12s., or an average of upwards of 40*l.* 6s., from which the Earl of Burlington became the owner of lot 16, at 155 guineas; and the Earl of Carlisle lot 17, at 50 guineas. The total amount for which Mr. Bates's cattle, 68 head, sold was 4558*l.* 1s., averaging 67*l.* 7s. each, which, when we consider the *crushing influence of Free-trade*, is indisputable evidence of the great estimation in which the Kirkleavington herd was held. Immediately after the disposal of Mr. Bates's herd, a portion of the stock of Messrs. J. R. and T. Bell, of Kirkleavington, was submitted to competition, without reserve. The last-mentioned herd were almost identical with that of Mr. Bates, inasmuch as the origin, as regards cows, was from the herd of that gentleman, and besides which the stock had access to the Kirkleavington bulls. In point of usefulness, they could not be surpassed. The value of Messrs. Bell's breed was fully appreciated, as will appear, from amongst the purchasers being the Duke of Sutherland, Earl of Carlisle, Mr. Tanqueray, Captain Dilke, Mr. Hopper, Mr. Faviell, Messrs. Becar and Morris, from the United States of America, Mr. Towneley, and others. The entire arrangements were most ably conducted by Mr. Chrisp, who represented the owner, and by Mr. Strafford, as salesman.—*Newcastle Journal.*

Much as we are pressed for space, we have taken enough on this occasion, to let the American farmer have, once for all a fuller view of one of the largest sales of cattle that has ever occurred in England, and let him bear in mind that this took place, at a time when wheat was selling so low as "almost to bear shipment from Liverpool to New York!" and further, that every guinea is five dollars.

What surprises us is, that Mr. Morris should have purchased a bull so old. But that his owner should have kept him so long for his own use, is itself presumption of his great excellence, and accounts for an animal at that age, going up to such a figure. How we should like to have been present at such an assemblage of English cattle and English farmers, and the next morning to have been at the "breaking cover" of an English fox hunt!

WHY IMPORTED STOCK DETERIORATE IN THE UNITED STATES.

The great and infallible impediment, as we have before said, to the preservation of improved stock, in all the points they have maintained abroad, consists in various obstacles. Among these we may reckon, want of that *judgment* which is the result of much and long experience—want of *capital;* and want of *liberality.*

Experience to guide a man in his judgment of the *qualities* of beasts, requires that he should be in *the habit* of seeing, handling, and dealing in a great number of the best, for a series of years—that he should be in association with breeders and butchers, of tried knowledge and experience, with whom it has been a trade, to be learned only by much use of the hand and the eye.

Capital, too, is needed, that will enable a man, without minding the loss, to throw out instantly and turn over, not to a neighbouring breeder, but to the *butcher;* every individual displaying the smallest defect of form, or one that lies under the shadow of suspicion as to purity of blood. The breeder who aims to establish himself permanently in the confidence of the community, should make up his mind, rather to give an inferior animal to the dogs, than to sell him for any price *to a breeder*—instead of this, however, there are

those, it is too much to be feared, who having once imported or bought a pair of good animals, would go on to breed from them, in and in, forever; selling anything and everything they produce. With them, it's all fish that comes into their net—and if they can talk loud, and learnedly, and pass off an inferior beast on an ignorant and credulous purchaser, they are too ready to take advantage of that confidence which of itself should inspire a generous resolution not to betray—and thus it is, that such men, some of them very great and all knowing men, in their own conceit, pass off their worthless ware, and laugh in their sleeve at their own smartness.

Other flocks and herds again, soon deteriorate, from being stinted when too young—their owners count too closely the expense of full keep, when they are young and growing, and when generous keep is most indispensable. But we need not dwell again on the ill effects of ignorance and avarice—they sometimes, would we could say always, receive the reward they deserve.

SHEEP HUSBANDRY IN ALABAMA—WHAT IS NEEDED FOR ITS EXTENSION.

TUSCALOOSA, *April* 17, 1850.

J. S. SKINNER, ESQ.

DEAR SIR—In no part of the United States does industry require artificial stimulants more than in the South. A large proportion of the people here are unemployed, or their labour is much less profitable than it would be if the objects and pursuits of industry were more extensively diversified. The prosperity and happiness of the people require that additional inducements should be offered to enterprise.

The resources of Alabama, now unavailable, are almost incalculable. Coal, iron ore, marble and limestone of the best quality, with an abundance of water power, may be purchased at $1 25 *per acre.* But capitalists have been prevented from investing, because they are indisposed to change their accustomed and familiar business.

I became convinced long before I read the discussions of Mr. Carey and yourself, that the South was the country for manufacturing cheaply, and that the improvement of the "Machinery of Exchange," was all that was required to bring the *loom and the anvil to the plough.* Five years ago I wrote several essays with a view to awaken enterprize, and direct capital in a direction to produce such a result. The industry of the South does not, in my judgment, require protection for cotton and woollen manufactures. I am aware that you, perhaps, dissent from this proposition. Our opinions were modelled by different teachers, and in no small degree may be attributed to local associations and influences. But it is not my purpose to enter the arena of controversy. I am perfectly contented to think and let think.

In this State, public attention has been powerfully drawn to the improvement of her industrial and economical interests. The removal of obstructions in our rivers is contemplated, and the construction of plank and railroads is entered upon with a spirit which promises to achieve much. It is no longer a problem, whether cotton can be advantageously manufactured in the South. That branch of industry has established itself upon a firm basis, and its progress is still onward.*

* The following, with hundreds of proofs like it, are signs but too significant, that something further is needed to give some chance to American labour, against the degraded labour of Europe.

The Petersburg, Va., Intelligencer says that "with the exception of the Battersea, Et-

It is certainly unnecessary to argue to you, that wool can be more extensively and profitably growed at the South than the North; this is most satisfactorily shown by the admirable work of Col. Randall, the writings of Mr. Cockrill and others, with all which you are perfectly familiar. The old and hitherto conceded opinion, that a high northern latitude is indispensable to a fine, long and strong staple, has been disproved within the last few years; and it has been demonstrated that these qualities depend rather upon due attention to the improvement of the breed, the dryness of the atmosphere and the character of the food on which the sheep subsist, than all other causes combined.

This State furnishes a variety of soil, the greater part of which is yet the property of the United States, and much of it likely to remain so for the next half century, unless the price is greatly reduced, or a portion is given to us to aid internal improvements, that the remainder may find a market. In addition to other summer and winter pasturage, the lime lands of north Alabama yield blue grass and clover in great abundance; the elevated and undulating portions of the State, even as far south as the Gulf, afford water and grazing and browsing for every description of herds and flocks. Grasses, coarse, fine, tough, tender, short and long, grow in the forests—taking their character from the seasons and their localities.

It is a very common belief at the North, even among those who should be better informed, that extensive marshes are found throughout Alabama, continually exhaling malaria, pregnant with disease and death. No conclusion could be more erroneous. Few of the States covering an area of more than fifty thousand square miles, contain a smaller quantity of wet lands, and its healthfulness at all seasons will compare favourably with any of her sisters.

Sheep husbandry can be much more successfully prosecuted here than in those States where the flocks are required to be foddered or fed on roots,

tricks, Matoaca and Mechanics' Cotton Factories—all of which are at half work, and of course on half wages—all the other Petersburg Cotton Factories, (the 'Washington,' the 'Eagle,' the 'Merchants',' and the 'Canal,') have stopped operations to await the coming of better times. This step, imposed as it was by a stern necessity, must create great distress, as a large number of men, women, and children, who depend upon their wages at these establishments for their daily bread, have been thrown out of employment, and with no prospect of getting other employment by which to earn a living.

"Effects of the Free Trade Policy.—The free trade policy, with its *ad valorem* system of duties, is working out its ill effects in other States as well as our own. The iron interests of Northern New York, as in Pennsylvania and Maryland and Virginia, are forced to succumb to the ruinous competition of British iron-masters and the low priced labor of foreign countries. The *Clinton Whig*, published in Clinton county, N. Y., states that of forty-one forge fires on the Saranac river, in 1848, twenty-one had been put out previous to the first of January last, and since that time, fourteen of the remaining twenty have also been extinguished—leaving but six of the forty in operation! The Whig adds:

"By this necessary suspension of business, *more than five hundred men have been thrown out of work*, and over 2000 women and children, dependent upon them for bread, are deprived of the comforts which they have heretofore enjoyed! In addition to these, eight of the eighteen fires on the Salmon river have been put out, and others will follow. So on the Ausable. Of the fifty-four there, probably not a dozen will be kept up through the summer.

"At these three points alone, over 1500 men, heretofore earning from $1 to $2 per day, will be thrown out of work—and the $2000 a-day which they have been earning will go, practically, into the pockets of the iron-workers of Great Britain."

In a letter from Messrs. Kennedy, Childs & Co., of Pittsburgh, on subscribing for this journal, they say:

Penn Cotton Mill, Pittsburgh, *May* 24, 1850.

"It may not be altogether out of place to state here, that owing to the working of the *beautiful* tariff of 1846, we are preparing to close our works, by which some three hundred operatives will be deprived of employment."—*Ed. P. L. and A.*

during at least half the year. In a great part of this State they may subsist and do well running at large in the forests, or on the gleanings of fields or pastures, with shelters under which they may at pleasure repose at night, or in inclement weather, with occasionally a little hay, cotton seed, corn or peas —taking care to furnish pastures of rye or other green food, during the period when the ewes are dropping their lambs. In fact, in almost all South Alabama, winter grass grows with sufficient luxuriance for the grazing of sheep, to say nothing of the most of our extensive pine forests on which sheep feed and fatten.

Notwithstanding the advantages of the South for growing wool, but little attention has been given to its production, *because it is not manufactured here to any extent, and consequently we have no home market for it.* Some of our cotton factories card it upon shares, or charge eight or ten cents a pound. Instead of submitting to such a heavy contribution, those who grow it beyond the immediate wants of their families, would prefer selling good wool at twenty cents per pound; but they complain that there is no demand for the article.

Alabama can produce as fine sheep as can be found anywhere, and would grow for the market several millions of pounds of wool, annually, without diminishing her other products, if she could obtain a remunerating price in Mobile or her interior towns. The want of such a market really paralyzes an important branch of industry. Judging from the progress of the last half dozen years, it is fair to suppose that the period cannot be remote, when we shall be manufacturers, not only of cotton, but also of wool;* but even then the supply may be increased far beyond the home demand.

The object of this communication is to invite your co-operation in establishing a "Wool Depot" in Mobile, at which the article may be sold for cash, at prices bearing a just proportion to what is paid for the same qualities at the North. In advancing this enterprise you may enjoy the consolation of being a public benefactor—not only by adding to the exports of Alabama several hundred thousand dollars in less than ten years, but in arousing many poor persons to industry by furnishing a market for a staple, which can be produced in abundance with a small amount of capital and effort. Is not the field sufficiently inviting to induce capitalists to enter it? Will you not lend your assistance? Benevolence is a moral duty. The North is largely indebted to the South for having so greatly enriched her, and still contributing to her wealth. That debt has been poorly requited. We however ask nothing in charity, or as a mere gratuitous favour.

If a market for wool were opened in Mobile, the interest of the grower and Northern manufacturer might be alike promoted. The latter would buy on favourable terms, and commend himself as a seller of goods to the people of this State.

I will endeavour to collect some specimens of wool from our native and improved breeds, and forward them to the Hon. P. A. Browne for examination. I hope to send you very soon, a publication more interesting and instructive than anything you have yet seen upon the geology and mineralogy of Alabama. In the meantime I remain, with great respect, your most obedient servant, H. W. C * * * *.

* It was our strong persuasion of this fact, that prompted us to apply to Col. Randall to illustrate and prove it in a work, which leaves for the Southern landholder who desires to extend his flocks, nothing further to be wished for, in the way of information, except to find out how to place the owners of *sheep* on a level with the owners of *dogs*, in point of influence with demagogue lawgivers, whose love of popularity transcends, somewhat their understanding and love of the public interest.—*Ed. P. L. and A.*

ON THE PROPER DEPTH TO SOW WHEAT—THE AVERAGE PRODUCT PER ACRE AND COST PER BUSHEL—THE OPINION OF AGRICULTURAL MEN AND SOCIETIES SOLICITED.

WHAT points in husbandry can be more worthy of consideration? May it not be believed that the rotting of Indian corn seed, so much lamented last spring, resulted from deep and irregular planting? That there is a rule to be observed, and that that may much depend on the season, there can be no doubt. If the season be dry and warm, no question but the grain would bear to be planted deeper, and would yet vegetate and grow. It is, we apprehend, this which constitutes one of the great advantages of *drill*, over *broad-cast* husbandry. The former gives to the husbandman more certain control and greater exactness and uniformity in the depth at which the seed is deposited. This is one of the subjects which does not vary in its aspect with the lapse of time. The principles on which it depends, are durable and permanent; and what was applicable to the subject, when we published the following essay, thirty years ago, is no less applicable now. If correct, it admonishes the farmer to put his ground for wheat in the most perfect tilth, and to take such measures, either by drilling or light harrowing, as will ensure shallowness and uniformity in sowing. If any of our readers have anything to say to the contrary, founded on experience, we shall be glad to hear from them; for, after all, the young farmer, of proper ambition, will think for himself, and be ever anxious, by the exercise of his own reason, and the test of experiment, to pronounce with confidence between the plausible and the true. While we are on this subject, we may express the hope of being informed of the result of further trials, if any have been made, of sowing wheat in the standing corn, as practised by some in Delaware, at the last working of that crop—and we suggest to farmers to make trial with sowing clover, whether with wheat or not, on their corn land, on laying by that crop. We cannot but think it a slovenly and expensive practice, however, to sow wheat while the Indian corn is still standing in the field; but we are not so sure that the clover may not be sowed then and there to advantage. The shadow of the corn may protect it and the root it would take would give it a good start in the spring, and secure it against being winter killed.

Finally, it is impossible for an observant and anxious friend of agriculture to contemplate without regret the course and the result of wheat husbandry in the States, where wheat constitutes the staple crop. Let us again repeat the request that judicious farmers in Delaware, Maryland, and Virginia, will take the trouble, not for our sake, but for their own, to calculate the *cost of manufacturing a bushel of wheat*, as it is manufactured or grown (the same thing) one year with another on his own farm.

We verily believe that neither Maryland nor Virginia *average* ten bushels —perhaps not more than eight to the acre. Now, the question is, whether those who continue to make it at that rate are not on the road to the ruin of their lands and themselves? for, John Taylor, of Caroline, Virginia, always insisted that less than ten bushels would not pay, and we do not suppose there is a farmer in England that would attempt to grow it under the expectation of less than fifteen, considering it a ruinous business at that, though he can hire his labour at six or seven dollars a month, the labourer finding himself. Again we say, let us have at least an attempt at calculating the cost, in various localities. Let it be the subject of discussion at agricultural clubs, and let the discussion wind up thus: Resolved, as the opinion of the Agricultural Society of Talbot, or of the Dorchester County Society, that, as a general average, the product of wheat in this county is bushels per acre,

and the cost per bushel. There is no obligation in such case to be exact or certain to a cent; but let us have the conjecture of judicious men for what it is worth. Who would put confidence in the sagacity or solidity of the merchant or the manufacturer, that was known not to attempt to ascertain the exact cost of a yard of cloth or a pound of sugar—yet does not the same obligation rest upon the farmer?

"The HESSIAN FLY proving extremely destructive to the crops of wheat in Virginia last spring and summer, and much having been written in the public papers on that subject, without adding one solitary useful fact to our knowledge respecting them, except the one communicated by General Cocke, respecting the manner in which they deposit their eggs on the blades, and descend into the sheaths of the wheat; a fact for which we ought to be much obliged to him, and hope he will proceed in tracing their natural history, by a careful and minute attention to their progress through their different stages; till that is done, I am inclined to believe that we shall not receive any really useful knowledge respecting the best means of counteracting or destroying their pernicious effects, though aided by the most splendid hypothetical speculations that human genius can invent. After having minutely traced their natural history, the next object that presents itself is, to ascertain the nature and manner of the growth of the vegetable of which we propose to counteract or prevent their injurious effects, viz., wheat. This becomes the more necessary, as there have been plans proposed of more injurious consequences, as I believe, than the fly itself; particularly one published some time ago in the *Richmond Enquirer*, by a person signing himself 'A King William Farmer,' who recommends early and deep sowing—a remedy which I have often seen totally destructive of the crop, the seed having rotted in the ground.

"In order to elucidate the manner of the growing of wheat from the grain, till it branches considerably, I have enclosed a delineation with its explanation, on which it is necessary to make some remarks, viz.: If a grain of wheat is placed six inches beneath the surface, it will vegetate and throw out two leaves, which are generally called seminal leaves, and corresponding roots, (see the delineation, A, *cc*, and *dd*,) then a thread is thrown out, which, as soon as it reaches near enough to the surface so as to come in contact with atmospheric air, it there forms a knob or enlarged point, which is the part from whence a new set of branches and roots are thrown out, which, in the autumn, is about an inch and a half or two inches beneath the surface, (as in the delineation marked D.) After this period, the seminal leaves, root, and the thread, denominated caudex, dies and becomes useless to the plant; above which it has a new set of roots, branches, &c. On examining many roots of wheat, some had a knob between the seminal and coronal roots, &c., appearing to be an effort of nature which proved abortive, being not near enough the surface to obtain air. If the seed is placed anywhere between six inches and two from the surface, there will be a set of coronal and seminal roots and branches; but if the seed be placed anywhere between the surface and two inches below, there will be only one set of roots and branches, and those immediately progressing in their different directions from the seed. I have said the stem or thread arises from the seminal roots to within two inches of the surface in the autumn; but this depends on the dryness and porosity of the soil at the time of vegetating; for, after the soil has settled by rains, and according to the tenacity and specific gravity of the soil, also its moisture, which increases the specific gravity, and prevents the access of atmospheric air, so will it be found nearer the surface; so that in the spring of the year, if any branching takes place at a late period, it will be found to be entirely on the surface.

"From the above statement of facts, I draw this inference: that if a grain of wheat is deposited upwards of two inches below the surface, that it has an extraordinary effort of nature to make, to come up to that point beneath the surface where it has access to atmospheric air; and is proportionately great according to the depth, quality of the soil, moisture, &c., which must occupy a proportionable length of time, and consequently is equal to having been sown so much later, if put its proper depth; and this I take to be the secret of the *King William Farmer's* deep and early seeding, as he particularly mentions a mother root, which I take to be the seminal root, (as at A in the delineation,) which is an evidence of the grain being deposited deeper than nature intended it should, for it is not to be found in wheat unless deposited upwards of two inches beneath the surface. He having mentioned the mother root, ought to have told us somewhat about where the daughters were to be found: for it is upon them that the *Hessian fly* commits its ravages, and I fancy they will always be found less than within two inches of the surface, the depth which he admits the fly to penetrate. He admits also, that all the seminal leaves were dead, a pretty good proof that the roots were so also.

"The next inference I make is, that the branching of wheat being within that distance,

to which the *Hessian fly* is known to penetrate, and that its branches become shallower and shallower according to the lateness of its branching, that deep seeding is no preventative against the ravages of the fly.

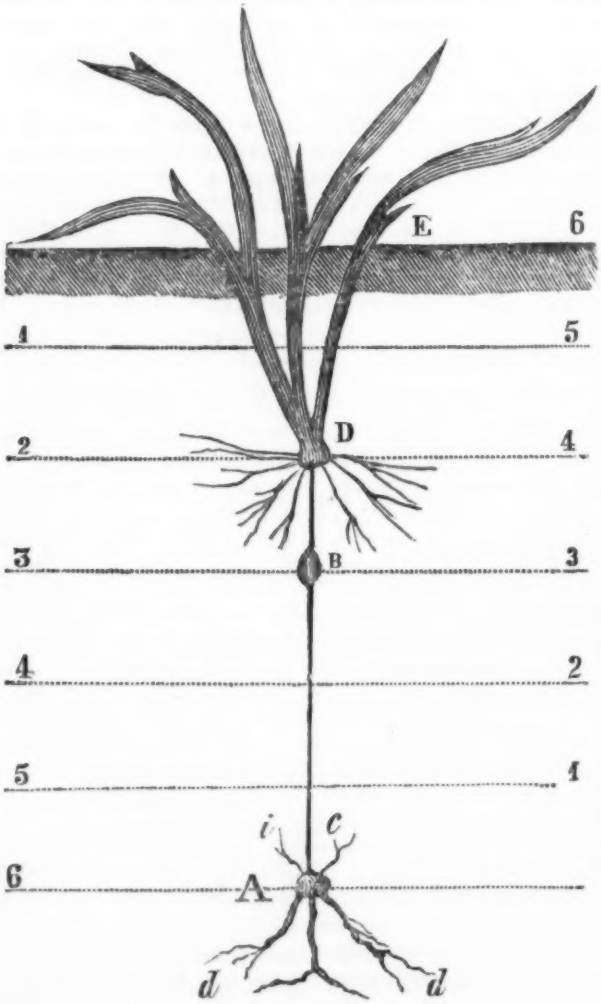
"The last inference, and not the least, is that where the seed deposited is deep, and out of the influence of atmospheric air, that should the season be moist or wet at the time of seeding, the specific gravity of the soil being increased, and its pores closed with moisture before the vegetation has reached the branching point, the seed will rot in the ground, and either partially or totally destroy, or rather prevent a crop being made. This happened to several of my friends this last fall, and is a circumstance that I have seen often happen, notwithstanding the strong disposition farmers have discovered of late years for deep seeding. To conclude, from a consideration of the above facts, and thirty years' experience, I am of opinion, that the best depth for seeding wheat is, from one to two inches.

"Thus, I have endeavoured to communicate my ideas respecting the growth and depth of seeding the wheat crop, and as connected with the *Hessian fly*; should it prove acceptable to the Society, I shall be amply rewarded for the trouble I have taken—and with my best wishes for the welfare of their undertaking,

"I subscribe myself their friend,

"WILLIAM MERIWETHER."

A delineation of the growth of wheat from the grain till it branches.



A. The grain of wheat deposited six inches beneath the surface of the earth, where it sprouts and throws out roots and two leaves which are called its seminal leaves and roots, and a central thread denominated caudex.

B. A bulb formed on the caudex, being an effort of nature to form branches and roots at that place: but being too far out of the influence of the air, goes on to within two inches of the surface.

D. The coronal roots and branches, formed two inches below the surface, having now reached within the influence of atmospheric air.

c c. The two seminal or first leaves, dead when the wheat has branched on the surface, and are hardly discernible without the aid of a magnifying lens.

d d. The seminal roots also dead after the coronal roots appear, and then are no longer useful to the plant.

E. The surface of the ground.

1, 2, 3, 4, 5, 6. Dotted lines, marking the number of inches beneath the surface at E.

Let what may be said or thought to the contrary, the most skillful, exact, and finished cultivation of land in this country, is in the large cotton fields of the South; because it is there that large forces operate with military precision under the constant supervision and direction of a single mind, clothed with

adequate authority to carry out what it dictates; and there, experience has taught them to have the seed deposited with great uniformity at from an inch to an inch and a half below the surface.

A WARNING TO THE SOUTH—FOREWARNED FOREARMED.

We commend to our Southern and Western readers the perusal of the following excellent article, which we take from the columns of the *Rochester Democrat*, desiring that they may see and understand for themselves how universal is the discord of the policy which goes by the name of free trade, but which has for its object the maintenance of the monopoly of machinery by England. The *Evening Post* teaches this free trade, but it cautions its Northern and Eastern readers against obtaining adequate protection, because that system will lead the people of the South to manufacture *for themselves*, while cautioning the South against such protection because it will *make them tributary to the North*. Had the planting States retained for themselves that protection which was secured to them by the tariff of 1828, they would now be the great exporters of the coarser kinds of cotton yarn and cloth, and their Northern brothers would require for the manufacture of finer goods more cotton than they now do for that of coarser ones, the consumption within the Union would be almost a million and a half of bales, and the price with a crop of three millions would be higher than it is now with one of two millions, and the lands of the South would be worth three dollars where now they are worth but one.

MANUFACTURERS AT THE NORTH AND SOUTH.

The N. Y. Evening Post, discoursing of the suspension of some of the Eastern cotton mills, anticipates as a consequence, a renewed call for the revision of the tariff and higher duties. It expresses the conviction, that the Eastern manufacturers would not even find a temporary relief from them. It adds—"they (higher duties) would encourage the manufacturing enterprise which is now running rapidly in a southern direction, and setting up mills all over the Southern States on the declivities of the upper country, full of numerous streams and close to the cotton plantations. We pointed out this effect of high duties a good while since, and *warned* the mill owners of the North to prepare for the migration of manufacturing enterprise to a lower latitude. The most effectual method *to postpone it* would have been for the mill owners to unite with the consumers in demanding a further reduction of duties."

The Post is unquestionably right. The effectual method to postpone the manufacture of cotton in the fields where it grows, is to reduce the duties. It is most earnestly to be desired that this truth may be fully apprehended at the South as well as the North, and that the former may take to heart the *warning* to which, as the Post intimates, the latter have proved so heedless.

Nothing exhibits more thoroughly the intense misconception under which the advocates of what they choose to miscall free trade, labor, than this brief slip from the Post. It is stated to the Northern manufacturers in the way of warning and in the expectation that it might deter them from advocating the continuance of the protective policy, in respect to cotton goods, that its first benefits would accrue not to them, but to the people of the South. It is obviously anticipated that the mill owners and operatives of the Eastern States, when convinced that its prophesies were correct, would at once alter their course—that the system of economical philosophy upon which they acted was one of undisguised, absorbing selfishness, that looked, first and last, to keep the industry of others as unproductive as possible, and monopolizing for themselves every field of remunerative labor.

The Post, perhaps, would have it understood that the mill owners did not believe their report, and very evidently cannot conceive it to be otherwise than that its fulfilment must prove most annoying and painful. But who is it that has heralded most promptly and rejoicingly the erection of each new cotton mill in the slave States?—who has encouraged the planters to persevere in their establishment?—who has depicted most glowingly the multiplied benefits that this diversification of their industry confers and must confer upon the people who have the wisdom to foster it?—who is it that has

exhorted them to go on and prosper?—Nobody else than the conductors of the Whig journals which are pledged to the protective policy, and the very New England manufacturers, labourers, and capitalists, whose trade, according to the theory of the Post, these men of the South were destroying. Are they madmen then?—are they insanely generous, or are they only pursuing the dictates of an enlightened self interest and a true political philosophy—which the Post does not comprehend—but which teaches them that the interests of labour are everywhere identical, and that producers can never thrive unless consumers thrive also? They affirm that the last hypothesis is the correct one. They, at any rate, are satisfied of its soundness, and propose to adhere to it. They look upon every cotton mill in the South as producing a host of friends and allies. They believe that the richer the planters grow, the better customers they will make; and that the way for them to grow rich is to manufacture their own agricultural products. In their estimation, it is quite as absurd and ruinous for the planter to send his cotton to Manchester to be spun and to bring back the cloth, paying transportation both ways, as it would be for the farmer of western New York to send his wheat to Liverpool to be ground and import the flour. It is a most cheering fact that the South is beginning to learn the folly of being merely an agricultural region itself, and of endeavouring to compel the North to be such likewise. So far as cotton is concerned, the cotton manufacturers in both regions desire no further protection. But what they do want is protection for the iron and coal of Pennsylvania and Ohio—they want encouragement for American labour in every department except their own—they are able to produce cheaply enough, but they want customers who can afford to buy, and in order that they should have them, the latter must have employment—the more remunerating it is, the greater the amount of cotton they will consume.

MR. BROWNE'S EXAMINATIONS OF WOOL.—THEIR IMPORTANCE ACKNOWLEDGED.—Extract of a letter from Wm. F. Van Amringe, Esq., to P. A. Browne, of this city, dated Montgomery, Orange County, New York, May 20th, 1850.

"The remarks you made respecting pile are new and interesting, and I look for your work on the subject both for instruction and pleasure. I hope you will have made the investigation of at least the four prominent species of men before I shall have occasion to publish a second edition of my Natural History of Man, as they will either confirm or make it necessary to modify my views in several important respects.

"The subject of your letter to Mr. Reed in the last May number of The Plough, the Loom, and the Anvil, is of vast national importance, and is made particularly interesting, by the fact you exhibit that *we can grow wool as fine as Saxony.* The other fact you exhibit that *all things remaining the same, except climates, European sheep improve the wool staple after importation.* I regard this letter of yours, containing as it does, the detail of facts upon which your conclusions are drawn, as one of *the most valuable agricultural papers I have ever seen.* It will beget a confidence in farmers which will lead to great results. It contains no speculations, is founded upon no hypothesis, and is so plain that the most simple ploughman can comprehend it without effort. It is also an important item for joy with the patriot, that in every sense our beloved country is destined to lead the world. Your remarks that crosses of different stocks [species] of sheep should not be made, because they produce hybrids, is scarcely of less value than the facts you detail in respect to wool. I believe that I was the first person who pointed out the law that crosses of temperaments in the same species are beneficial to progeny, while crosses of even proximate species *are* always prejudicial. It affords me much pleasure to notice that you have adopted and urged it in a matter of so much practical importance and in the proper time. It is, as you say, of the first importance to get a *fair start*, and not to commence by breeding hybrids. Judging from this letter I am led to the belief that your contemplated work on sheep and wool will be of *national importance.* That you may be in every respect successful is the hope of yours sincerely."

ON THE TRUE CAUSES OF EXISTING DIFFICULTIES. FROM A FRIEND OF THE UNION IN PENNSYLVANIA, TO A FRIEND OF THE UNION IN SOUTH CAROLINA.

PHILADELPHIA, *June* 13, 1850.

DEAR SIR—You asked me what it was that the North desired, and I should have been glad to answer the question in person, but as we did not meet again, will now do so on paper; but first wish to call your attention to what it is that the people of the South desire, with a view to see how far the means adopted for obtaining it appear to have tended to promote, or to defeat, the realization of their desires. In doing this, I may present a view of Southern policy and its effects widely different from that which you have been accustomed to take; but I beg you not for that reason alone to reject it as unworthy of consideration. There is error on both sides, but it is little likely to be corrected so long as either one shall continue to look only at the "aggressions" of the other, forgetful of its own; for the direct effect of such a course is to give power to men who use it only for their own aggrandizement, careless as to the effect upon the people who thus place power in their hands. Such, unfortunately, has been the tendency of the last twenty years. We have been becoming more and more sectional in our feelings—more and more sensitive in regard to "aggressions"—and more and more disposed to commit them; and for this unhappy change there must have been some cause far more immediately operative than any mere change of moral feeling in relation to slavery. To an examination of the nature of that cause I invite your attention, believing that it can be shown to be an error of Southern policy that tends, and has tended, to defeat the accomplishment of the desires of Southern men.

They desire perfect security for their property, and they enforce a system of commercial policy that tends to render, and must, as I think, eventually render, every man in the North adverse to the further continuance of their rights of property.

They desire the suppression of abolitionism, and they insist upon a system of policy that tends to render every man an abolitionist.

They desire to maintain the balance of power that they may protect their property; and they pursue a course that tends to render every Northern man a free-soiler.

They desire to become strong that they may protect themselves; and they are seeking, even at this moment, to pursue a course that must tend to render them weaker—and so have they done for twenty years.

I am no abolitionist. I have no unkind feeling towards the South. So far am I from feeling hostility to them as owners of slaves, that I cannot but respect that *only* people under whom the negro race has increased in number —that people under whose mild government 300,000 barbarians have grown up into four millions of comparatively civilized men, while everywhere else importation has been needed for the mere maintenance of numbers; and throughout the world freedom has come with the increasing value of labour and land, resulting from increase in wealth and numbers. The slave is now passing towards freedom by the natural road, profitably to himself and his owner, and his progress can be accelerated by no measures tending to the injury of either the labourer or the owner of land. If it could be so, it would be in opposition to all the facts of history, and to all those which strike us on an examination of the existing condition of the various peoples of the earth. The true friend of the negro race is therefore bound to urge the most perfect respect for the rights of Southern men, and the most entire abstinence from interference with their institutions; and he who does otherwise is a real

enemy, however friendly may be his intentions towards the objects of his solicitude. Such is, as I conceive, the duty of every man, both as a Christian and a citizen; and such, be assured, would be the almost universal tendency among Northern men, were it not that Southern measures so frequently tend to place it in the power of honest enthusiasts, or crafty politicians, to produce disturbance. What are those measures, and how they tend to give that power to their enemies, I propose now to show.

The North seeks freedom of trade through protection against a system that was declared by Adam Smith to be "a manifest violation of the most sacred rights of mankind." The South seeks to arrive at the same point by a different road, and compels the North to take its road, *and hence it is that abolitionism grows.* Seventeen years since the South dictated the policy of the nation, and the result was universal ruin. *On the day of the passage of the compromise bill, abolitionism scarcely existed.* Ten years after it had greatly grown. How much of the change would you attribute to Southern commercial policy? Might you not safely give it *nearly all?* It seems to me that you might do so.

In vain might abolitionists have lectured had they not been seconded by a feeling resulting from the fact that in every case in which the interests of the free labour of the North had come in conflict with the real or supposed interests of the slave labour of the South, the former had been compelled to give way, leaving to the latter the entire dictation of the policy of the country, however ruinous might be its effect upon free-state interests.

Power changed hands and the policy was changed, and with the change came universal prosperity. Texas was then brought into the Union, and *by her vote* the commercial policy was changed to suit the views of the South, the result of which is that Pennsylvania alone suffers this year a loss that would not be paid by *thirty millions* of dollars, and the free States one that would not be paid by *one hundred and fifty millions.* Can you wonder, then, at the existence of the free-soil party? Can you be surprised at the growth of the abolition weed, when you cultivate it so extensively and manure it so carefully? Had you let the tariff of 1842 remain unchanged, the amount of free-soilism or abolitionism would even now be so small as to be unimportant. Having so used Texas, can you be surprised at the indisposition to permit you so to use California?

The South now insists on a slave State on the Pacific to balance free California—yet it annexed Texas by a mere majority, and then used a majority thus obtained to strike down the North. Could it have done more for the growth of free-soilism? Could its worst enemies have desired anything better? I think not.

The South limits its efforts to the acquisition of senatorial votes, as now in the case of California. The accomplishment of that object renders necessary the dispersion of a population that grows by natural increase alone, there being no emigration to that portion of the Union. The necessary consequence is, and must continue to be, that as their States become more numerous the whole mass becomes weaker and less capable of self-protection, because their population is more widely scattered. Had Virginia and South Carolina looked to increasing their strength in the House instead of the Senate, they would now be much stronger than they are with Missouri and Arkansas to back them. What would be, at this time, the influence of those two States, so highly regarded as they have at all times been, had they acted in harmony with the North, and *permitted* their population to grow as has grown that of New York and Massachusetts? Would it not be treble what it is seen to be?

The South is now *compelling* the dispersion of Northern population for the creation of new States and new senatorial votes. Half of the people who have gone to California would have remained at home had they had profitable

employment, as they would have had but for the change of policy in 1846. The miners and furnace men of Pennsylvania, and the immigrants that should be building mills and furnaces, now seek Minnesota, to enable her to come into the Union; and thus the policy that induces the South to *seek to create* for herself senatorial votes, *forces their creation* in the North. Such, certainly, appears to me to be the case, and hence the measures adopted for the purpose of strengthening the South weaken it more from day to day. Would the California question now exist had the administration of 1846 maintained the policy of 1842? Yet the former was Southern policy and the latter was the Northern one. Examine it carefully and you will find, or I am much in error, that the Northern policy is the one that has at all times been needed for strengthening the South.

The true interests of the South require that it should *invite* population instead of *expelling* it. With every such expulsion it becomes weaker. The North resists, when if it sought to weaken the South it would aid in expelling population from the older Southern States. The South desires votes in the Senate that it may protect slavery, and aid in maintaining a system of commercial policy that weakens itself while aiding the growth of abolitionism and free-soilism. The North refuses the South more votes because it feels that it suffers under Southern policy, which is weakening Southern institutions by stimulating the growth of abolition and free soil, both of them foes to the peace and harmony which the North would desire to maintain. *In this question of commercial policy lies the whole difficulty.* The North cannot be stimulated to a desire for supremacy except by measures tending to the ruin of its best interests. That stimulus is furnished by the South.

The North sees its mills and furnaces closed, and its mines abandoned, and its people flying by hundreds of thousands, while the time of Congress is so exclusively occupied by the *fugitive slave* bill and other kindred measures, that there is no chance for considering the case of *fugitive freemen.* Its people are being ruined, and its expensive works are passing one by one into the hands of the sheriff. Everywhere men are seeing the day of their ruin approaching—they are hanging by the eyelids—yet are they told that their case cannot come up for consideration until it shall have been determined whether or not the South shall have more senatorial votes to enable it to continue the desolating system under which they suffer. Can you wonder, under such circumstances, that they become free-soilers? Are you not all the time engaged in making abolitionists? I really think you are. You appear to me to have been doing so for twenty years, and the more vigorous the growth of both the more abundantly you feed them. *I beg you now carefully to note the fact that on the day of the passage of the compromise in* 1833, *abolition had scarcely an existence,* and then to answer to yourself the questions—Would it ever have grown had not the South compelled the North to adopt its policy? *Will it ever diminish if the South continues to compel an adherence to the present system?* That it will not, I feel assured. On the contrary, the hostility to slavery can scarcely fail to increase with every hour that it is maintained. The people of the North are becoming tired of periodical ruin produced by Southern control of all the operations of government.

The South insists, however, that its policy is the true one. If it were so, it would produce harmony—not discord. Prosperity produces the one, but ruin the other. Ruinous as is Southern policy to the North, it is suicidal as regards the South, and it is its own policy that produces its own weakness, and its own jealousy. Five hundred millions of dollars would be *not even an approach* to the amount of loss to the planting States from the abandonment of the policy of 1828; and I feel warranted in asserting that the

value of Southern property is not at this day *one-half* of what it would be but for the adoption of Southern policy in 1833. Northern manufacturers now fear perfect protection, because it will produce Southern competition. Northern free traders now caution the North against protection, because it must extend manufactures in the South—yet that extension is all that is needed by the South to double the value of its land. Nevertheless, it clings to them, and would regard me as almost an enemy.

For the last seventeen years the South has controlled the policy of the government, except during the four years from 1842 to 1846. Has the value of Southern property increased in that period? Is it as great in proportion to population, as it was in 1832? Had the policy of 1828 been maintained, would not the South be now studded with factories, at which there would be consumed at least half a million of bales of cotton? and would not the coal and ore beds of the South be now producing iron by hundreds of thousands of tons, to be employed in making railroads through the South, and factories in the South, creating a demand for labour, and increasing the value of both land and labour? Should we not have imported millions of people to be consumers of cotton, each one consuming here five or even ten times as much as he consumes at home? and would not the home demand now absorb so much as to enable the planters to fix the price for themselves instead of having it fixed in the fluctuating market of England? Such would have been the case; and so great would have been the effect, that in asserting that the value of property would have been double what it now is, I feel assured that I assert far less than the truth. Hundreds of thousands of men who are now at the North would have found a place in the South, but for its suicidal policy—and it is man that gives value to land—yet the South is always engaged in the expulsion of man from land.

Let it not be said that this is a question of the undivided South against the North. A very large portion of the people of the Southern States have already arrived at the conclusion that the policy of 1842 was the true one, and would this day vote for its re-establishment, could their opinions be fairly represented. Virginia is almost equally divided, yet her immense minority is almost unrepresented on the floor of Congress. Delaware, Maryland, Kentucky, and North Carolina are favourable to protection by a large majority. Tennessee, Georgia, Louisiana, and Florida are equally divided; and it may be deemed doubtful if in the whole of the States south of Mason and Dixon's line there is not a majority adverse to that which is regarded as the Southern policy; while at the North, could the vote be now taken on that question alone *without reference to party*, the vote in favour of protection would probably be two to one. Nevertheless, by force of party organization the minority rules the majority, and is then surprised that the majority struggles to prevent the adoption of measures tending to the maintenance of such a system.

Free trade, however, you will say, must be right. It is so, but how to reach it? You, perhaps, will say that Adam Smith taught that it was to be by the removal of restrictions on trade. He did, but of all restrictions those which he deemed the most disadvantageous were those English ones which tended to prevent the loom from going to the plough, as he saw it natually tended to do. *Smith regarded the home market as the great one*, and he taught that every measure which tended to a diminution of the proportion of mechanics to agriculturists was not only a great discouragement of agriculture, but a violation of the dearest and most important of the rights of man—and as such it was that the men of 1776 resisted, and that we resist them. From the day of the publication of the "Wealth of Nations" to the present hour, *every single measure* of English policy, without an exception, has been directly in opposition to Smith, who would be, were he now a Carolina planter, an

advocate of protection as the only road to freedom of trade, for that policy is in perfect accordance with his views. He was opposed to the system which had for its object that of making England "the workshop of the world," and yet it is the sole and exclusive object of all the measures now characterized as "free trade." Were he now here, he would be no advocate for the suicidal course of the South, for it is opposed to his whole system—nor would the Southern States be so if they were alone, but they are so because they desire to weaken the North, whereas their policy weakens themselves while making enemies at the North. They are, be assured, themselves the cause of all their difficulties, for abolitionism and free-soilism owe their existence to the change of front of Mr. Calhoun and some of his friends between 1816 and 1830.

We may now go ahead with the present policy, and continue to wrangle about slavery, which will continue to grow weaker, and the hostility to it continue to grow stronger, until the worst anticipations of Southern men shall be realized, to the infinite depreciation of Southern property. Or, the South may determine to mine its own coal, smelt its own ore, and make its own cloth, in harmony with the North, the strength of the planting interest increasing until the fondest anticipations of Southern men shall be realized, to the great increase in the value of Southern property, and to the annihilation of abolitionism and free-soilism—and to accomplish all this there is needed only protection, not, as you say, prohibition. That is not required, but security to the North and the South against the perpetual revulsions of England is absolutely necessary to the security of Southern property—and *the latter cannot exist without the former.* How is it possible that it should? The one policy links the South to England, the creator of slavery in India*—the denunciator of it in America—the emancipator of slaves in the West Indies—the stimulator everywhere of competition with Southern products—the enemy, everywhere, of Southern interests—the slanderer, everywhere, of Southern men—while *crushing* Pennsylvania, always the friend of the South, and almost crushing the Northern States, *which stand by the South alone against the world.* The other links it to friendly Pennsylvania and the friendly North and West, while making it independent of the inimical Briton, who, if he had the power, would at once emancipate every slave and ruin every planter. Look, I pray you, to the proceedings in reference to Brazil and slave-grown sugar, and determine which it is that the South should conciliate. Next, look to the fact that she *clings* to the Briton and *tramples* on the Pennsylvanian; and then determine why it is that free-soil grows.

Of all the parties that have ever controlled the destinies of England, the one most opposed to Southern interests and Southern institutions is that which now seeks, by the establishment of what is termed "free-trade," to render permanent *the monopoly of machinery* by which that country has at all times sought to become "the workshop of the world;" and yet it is with that party and that policy the South desires a close alliance. As a specimen of the doctrines taught in that school, I take from one of the papers of this day the following paragraph, to which I invite your careful attention:—

"The Westminster Review, heretofore regarded as the organ of the 'Whig,' and sometimes even of the 'Progressive' or 'Radical' party in England, has lately spoken upon the subject of slavery, in a tone which ought to set all parties in the United States

* It was reserved for English domination and English taxation to produce in India such a state of exhaustion as to induce the Hindoo to sell himself for a term of years, to be employed in the cultivation of sugar in the West Indies. The latest intelligence from India brings accounts of a rebellion on account of an increase in the tax on salt, already so great that *Liebig* is disposed to attribute to the almost impossibility of procuring that necessary commodity, the steady existence of cholera.

to thinking. It says that, to prosecute to its proper end the policy which induced the abolition of slavery in the West Indies, the British nation must extinguish slavery in the American States, Brazil and the Spanish West Indies. It adds that slavery can be extinguished in Brazil, by landing a few thousand troops at Rio, and proclaiming the liberation of all the slaves. The result, says the Review, 'would be a socialist insurrection with no *Cavaignac* or *Garde Mobile* to put it down, the universal massacre of the whites, and the destruction of their property.' The Review does not directly recommend this expedient for our slave States; but as it enumerates them among the States in which British policy dictates the extinction of slavery, we may infer what it *would* do, if it *could*."—*Public Ledger.*

Such are the doctrines of the men who counsel the South to increase its dependence on England! In face of the fact that man has everywhere become free as land has become valuable, they counsel measures that would destroy the value of land, with a view that slavery may cease.

Rely upon it, there is but one way to put an end to free-soilism, and that way lies in a direction *precisely* the opposite of that which is now being pursued. Six months spent in the discussion of slavery to the neglect of everything else, strengthens the cause of abolition to an extent of which you can have no idea. City meetings, made up of traders, most of whom care for nothing but trade, are no indications of the state of feeling. I believe there are ten free-soilers in Pennsylvania for one that was there six months since, and every day's discussion of slavery will only increase the number. Let the South then open its eyes to the fact that it is always weakening its friends and strengthening its enemies, and let it determine to change its course and strengthen the former, and then it need not fear the latter. Let it at once determine to meet the North with a fair and liberal proposition for a settlement, and a permanent one, of both questions, and there will then be no difficulty in making the settlement. That done, free-soilism will pass away, for the possession of power will cease to be an object of interest to the mass of the people, either North or South. It is a weed of Southern growth, and it is for the South to extirpate it. Non-interference is the policy of almost the whole people of the North. Interference is the policy of the few. When the South shall have made friends of the one, it will cease to care for the other.

The papers of the day contain a statement that the chairman of the Ways and Means has said that nothing *should* be done until the slave question was settled. Such a declaration is more efficient than a hundred free-soil articles, and this I say from actual knowledge of its effect upon men heretofore most kindly disposed towards the South, and most anxious for a removal of all difficulties. The same papers contain sundry resolutions proposed for adoption at Nashville, all of which are admirably calculated to promote free-soil and abolition. They assume that the love of union is so great at the North that the South may dictate all the terms of union. Now, I believe that no man can study carefully the phenomena of the last twenty years without arriving at the conclusion that if the line had been drawn in 1832, leaving Virginia and that portion of the South which chose to go with her to legislate for themselves, the States North of the line would at this day have a larger and richer population than is now contained within the whole Union, and therefore that it would be to the interest of the North to say to the South "Let us determine to live together in quiet, or let us peacefully separate. You compel us to be free-soilers and abolitionists, and we would prefer to cease to mix ourselves up in your affairs."

The course of the South is one that would not be persevered in were its people to study carefully the causes of the decline in the price of their great staples; for the result of such an enquiry would be to satisfy them that the power to pay for cotton, on the part of England, is steadily declining, and

that a continuance of this dependence on her must result in ruin. Her market is incapable of expansion, as regards the amount to be paid, and therefore it is that the planter is steadily giving more and receiving less for it. Almost the whole increase in the consumption in the twelve years from 1836 to 1848 was in the two *protected* countries of the world—the *Zollverein* and the United States, while that of the countries dependent on Great Britain was almost nothing; and yet they will insist upon continuing their dependence on her, always an enemy, when a single effort would make themselves independent—and to carry out this determination they quarrel with their best, if not their only, friends.

Of the *apparent* increase in the English consumption during that period, a large portion was produced by the demand of the *Zollverein* for yarn which the confederation were not yet prepared to spin, but which now they mean to spin, having just raised the duty upon it. Allowing for this, the growth of demand in 1847 and 1848, as compared with 1836 and 1837, was as follows:—

English, ...	13 per cent.
Zollverein, ...	130 "
American, ...	125 "
All other, ...	10 "

During a large portion of this period our manufacturers were being ruined by the effects of the Southern policy of 1833. Had that of 1828 been maintained, the growth of the home demand and that of Germany would have absorbed all the excess of product, and more, leaving less than before for England, unless the high prices that would then have ruled had largely increased production, as it would have done. The production by England of commodities to be exchanged does not keep pace with our own, and therefore it has been that we gave in 1845–6 *six pounds* of cotton for *less iron* than thirty years before we could have had for *one*.

Your Southern friends believe that they have now sufficient protection, and proclaim that they will manufacture for themselves and thus "block the game" of the North, which will be compelled to close its mills as those of the South are opened. Such is the feeling manifested on all occasions; and it is one that cannot but be more injurious to the South than to the North, for if they pursue a policy that closes Northern mills they must diminish the consumption of their great staple, and lower its price. Let them, on the contrary, unite with their Northern friends—and be assured that if this question were settled they would find at the North few but friends—let them, I say, unite with the North in the adoption of measures that will cause the transfer of the coarse machinery of Lowell to their own cotton fields, to be replaced at Lowell by the finer machinery that will then be needed, and they will find increased demand and higher prices, and then they will cease to pray for short crops as the only means of preventing ruin. Believe me, there is perfect harmony between Northern and Southern interests if properly understood. Is it not, then, desirable that the question should be calmly examined with a view to ascertain the truth?

It is proposed to establish what is called "reciprocity" with Canada—that is, to grant to the Canadian all the benefits resulting from being within the Union, without requiring of him the performance of any of the duties that would devolve upon him were he within the Union. Remaining outside, he sells his wool at the high price of Lowell, but he buys his cloth at the lower price of Leeds. Were he within the Union he would sell his wool and buy his cloth in the same market. Remaining outside he sells his wheat at the high price of New York, but he buys his iron at the lower price of Wales.

Were he within the Union he would sell his wheat and buy his iron in the same market. The direct effect of increase in our home manufacture of cloth and iron is to increase the home price of raw materials, and diminish the foreign price of the articles manufactured from them. The Canadian is to profit by both and pay for neither. Were the Virginia, or the Michigan farmer to make the same request, it would be at once denied, but that of the Canadian will probably be granted by aid of Southern votes, given with a view to diminish the inducements to annexation. That done, the effect *must inevitably be* to convert every farmer of the North into an annexationist, and free-soil principles will rapidly extend, and thus the result of such an effort in opposition to Northern farmers will be that of weakening Southern planters. Every single effort of the South against the North has, thus far, resulted in increasing the weakness of the former, which never can be strengthened until it shall resolve to act in harmony with its real and *only* friends, the people of the North.

The whole matter may be summed up in a few words. The South is always aiding its enemies and ruining its friends, and it is surprised at the increase in the number of the one and the diminution in that of the other. It is always offering a premium for abolition, and is surprised that its cultivation extends. It is always watering the free-soil tree, and it wonders that its growth should be so luxuriant. Is it not so? Should it continue to be so? Is it not time that Southern men should open their eyes to the fact that their own safety and that of their institutions requires a change of policy?

I beg you carefully to reflect upon these facts, and to satisfy yourself what are the real causes of the serious discord between the two great portions of a family whose best interests require that they should live in harmony with each other. Rely upon it your friends deceive themselves about Northern aggressions. They have been so long accustomed to look at one side of the question that they forget that there is another one. It is a grievance to the planter to lose a slave, but it is a much greater one for the farmer to see the neighboring mill, or furnace, or coal mine, closed, and feel himself deprived of a market for the things produced upon his farm—for the labour of himself, his sons or his daughters—and to see both sons and daughters compelled to leave him and fly to the West for want of a demand for their labour in the East. Between the *real* interests of the two sections of the Union, there is no discord. Let us then try to live together in harmony.

With great regard, I am yours very truly,

———— ————.

COMPARISON OF THE CONSUMPTION OF FOOD BY LARGE AND SMALL ANIMALS.

BY GEORGE SHACKEL.

To Mr. Pusey.

DEAR SIR: I was from home on the arrival of yours dated 30th September, or I should have answered it earlier. The lambs which I mentioned to you as having wintered last year were both of the Hampshire breed, one hundred in each lot. I will with pleasure repeat what I stated on Wednesday last respecting the feeding and quantity, and also give you an account of the cost of each lot as well as the proceeds of the sale when they were fat. The two lots were fed at the same time on the same food, and penned on the same ground, but were kept separate from the commencement. I allowed each lot,

when on turnips (because we did not slice the turnips, only the Swedes,) the same sized piece per day; and when on Swedes, which we began about Christmas, thirty-three bushels (sliced) per day, and eighteen bushels of excellent clover-chaff to each lot; and on the 20th of February, 1847, we gave them 1 lb. of oil-cake a-day on an average until they were sold out.

Bought in the last week in October, 1846.

	£.	s.	d.
100 very large Hampshire Down lambs, cost per head . .	2	1	0
100 Hampshire Down lambs, weighing about 1½ stone less than above, and very much smaller, cost per head . .	1	15	0
	0	6	0

The latter were in much better condition than the large ones.

Sold out from the 28th March to 10th May, 1847.

100 lambs which cost 41*s.*, sold at Smithfield and Southall markets, realized on average, with wool, ...	3	1	3
100 lambs which cost 35*s.*, sold at the same markets, realized on average, with wool, ...	2	9	0
In favour of large lambs, ...	0	12	3

I ought to add that the markets were about 2*s.* per head in favour of the large lambs, the trade for mutton being about that difference, or rather more, when the large lambs were sold, which would leave 10*s.* 3*d.*, instead of 12*s.* 3*d.*, in their favour.

Nothing would be more conclusive and satisfactory than a fair trial, in the same manner, between one hundred of Sussex and one hundred of Hampshire Downs, both lots of their breed of equal value; that is to say, one hundred of best Sussex against one hundred of best Hampshire, kept on the same land and fairly tested out of doors, as a farmer would wish to winter them.

Perhaps you will be able to get a fair trial between the large and small breeds, and then publish the result, which would be more satisfactory than mine.

With much respect, I am, dear sir, yours truly,

GEO. SHACKEL.

READING, *Oct.* 4, 1847.

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NOTE BY MR. PUSEY.

The above trial seemed to me well to deserve a place in the Society's journal, as throwing light upon the question whether large and small animals of the same race do or do not consume food in proportion to their respective bulk. This question is not merely interesting as a point of physiological science, but also in practical farming. A large body of farmers defend the Hampshire or West Down sheep, notwithstanding their plain appearance, by saying that this plain breed comes to a greater weight, and therefore makes a greater money return than the Sussex or true South Down. The breeders of South Down reply that, if their sheep are smaller, more of them can be kept on the same farm. Here, then, the abstract question has a practical bearing. In this second instance there was a very decided difference between Mr. Shackel's two lots, yet the larger lambs were satisfied throughout with an equal allowance of each kind of food; and, though of the same breed, made a better return, by 4*s.* a-head, than the smaller sheep. This plain fact seems to warrant me in calling the attention of practical men to this point of farming.

PH. PUSEY.

THE MARYLAND STATE AGRICULTURAL SOCIETY will hold their THIRD ANNUAL EXHIBITION at Baltimore, on the 23d, 24th, and 25th of October, 1850.

Premiums are offered as usual, from $15 for the best bulls of the best breeds, and of no breed, or natives; down to $1 for pound cake and pickles.

The general heads of the schedule of prizes are, cattle, sheep, swine, horses, poultry, tobacco, and various "agricultural productions," implements, butter, cheese, honey, fruit, vegetables, flowers, household manufactures, wines, bounce, cordials, bacon hams, and though last, certainly not least, for *best ploughing!*

Where premiums are given, for excellence, in the fatness or the weight of animal or crop, is it not to be expected that such *excellence* will indeed be exhibited? for if the competitor, though outdoing all his rivals, shall yet only have accomplished what has in the same line or department, often and for many years past been, not only equalled, but much exceeded; where will be the proof of that general, progressive, and economical advancement, which is the true legitimate aim and promise of such associations? and of that skill which merits to be singled out and held up as something extraordinary; attained by exemplary means? For ourselves, somewhat familiar for thirty years with the origin and proceedings of such societies, we have sometimes thought it might be well for them to name *minimum* quantities or weights, *beyond* which, at least, the winner should be required to go, and that, too, with materials and by a process, which all would admit, *would pay!* What would seem, in a word, to be expedient is, not to give the little money that can be collected, to reward men for doing what it has been a thousand times proved can be done; but to tax the ingenuity and stimulate the pride of the agriculturist, by insisting that the honours of the Society shall only be won by showing, that he who wins them has let out *another link in the chain of improvement!* But in this notion we may be wrong, particularly as, if carried out, it might much diminish the number of competitors, and the ingredients of the show.

The *highest* premium offered for *sheep* of any class, we observe, is offered for the "best *imported* buck and ewe of any description"—even though they may be inferior to native bred sheep on the ground of the same race. With great deference to the better judgment of the Society, we must say we are unable to see the policy of this distinction in favour of imported sheep. Against all imported things, even imported knowledge, there is a root of foolish jealousy, that we should endeavour to extirpate, instead of giving it something to feed upon. We had supposed that the only object of importation, was to increase the means of *improving what we have!* and if, in our country, we can find bucks and ewes of finer fleeces or better forms, than such imported ewes as are exhibited, why discourage the great skill and perseverance which produced that superiority, by awarding the highest distinction to the inferior animal from abroad? If in the case of sheep, as in that of costly cattle of improved breeds, there was difficulty in finding animals of the same breed, but of a different family, with which to cross those we have, it might in such case be well to encourage importation by some inducement—so it might be expedient to offer a premium for the importation of animals supposed to be of value, and not hitherto imported. But even in the case, for example, of imported short horn or other improved races of cattle, where the increase of our stock to select from must necessarily be very slow, would it be right even there, to give for an imported Devon or short-horned bull, merely because he was imported, a higher premium than you would give to a superior animal of the same breed, produced at great expense and care by Mr. Calvert or Mr. Patterson, or Col. Capron? Suppose the two competing animals to be put

up to be let for the season to a judicious breeder of fine woolled, or of mutton sheep—for which would he bid highest, for the superior native "buck and ewe," or for the inferior imported? Would it be flattering to the judgment of the Society, to see such a breeder passing by the animal to whom they had awarded their highest premium to give more for one which had taken the lesser prize?

These remarks, if of any force whatever, apply more particularly to sheep, because, even if the Society required that the imported should be at least equal to the best native, (which they do not,) there is reason to know that there is no difficulty in procuring, in our own country, any number of "bucks and ewes," especially of the fine woolled race, at least equal to any to be had from abroad, and at prices far less than they can be imported for, and the breeders of such, may consider it poor encouragement to see the highest premium given by the Society to animals confessedly not equal to their own.

For our humble selves, we are strong advocates for imported animals, quite equal if not superior to our best, especially in the case of cattle—for full bred cattle are not yet improving in our country, on the imported stock, nor do we believe they will, over the improved cattle of England, for various reasons, viz:—want of experience, and the skill which is the fruit of it, and want of capital, while our feeding is inferior and our climate not better for cattle. For sheep it is otherwise. For fine woolled our climate is better, and the latitude of choice for breeders is ample. Hence we would sooner go to Col. Randall, of New York, or to Mr. Patterson, of Pennsylvania, or to Mr. Cockrill, of Tennessee, for breeding stock, than to take our chance in any foreign country, even Saxony; for while we should expect to get the animals equal at least to the Saxon, we should get them much cheaper. But so much is that success to be desired, in the improvement of our sheep and other animals, which is alone to be attained by great and constant care and vigilance, that for ourselves, all other things the same, we would give the highest prize to a native animal of superior, if not of equal merit.

The reader may think we have occupied too much space with a small matter, and so should we, if it did not *involve a principle;* but as Dr. Sangrado said, how can I give up the use of hot water and the lancet; have I not written a book to recommend them? So in this case, we presumed briefly to hint our doubts as to the propriety of giving a premium which might light on inferior sheep, merely because they were imported; but as the society determined advisedly to do so, it is not to be doubted they were right, and so we give up the point.

As to the qualifications of the judges appointed to award the premiums, their characters, far and widely known, offer, if they will serve, every moral assurance of fairness and good judgment. On this point, almost above every other, great pains should be taken to ward off the suspicion of ignorance or favoritism. Nothing so certainly or deservedly destroys public confidence as the idea, of a certain set of men getting, by long association, banded together, and *playing into each other's hands.* There is no point about which, in England, greater solicitude is manifested; so far is it carried, that those who recommend and nominate judges, are held responsible for, a belief not only that they will be present and serve, but that they are altogether, directly and indirectly, disinterested.

Finally, our poor belief is, that if this and all other societies and individuals, would "act in a body," and enforce a policy which would compel all those who now manufacture for us, all the clothing we wear, and all the iron we use, to come and manufacture it here, where we have the raw material in our own country, it would do more for the *general improvement* of agriculture, than has been accomplished by all the agricultural societies that have

been formed, as they have been, from before the revolution to the present time.

FARMERS AND FARMSTEADS IN BALTIMORE COUNTY—OLD REMINISCENCES—CIDER MAKING AND CIDER BOTTLING.

Early in June, enjoying for a few days the rare opportunity of snuffing the country air, we made a flying visit to two or three excellent farms in Maryland, peeped into their barns and dairies, supped their nice "slip," and feasted on their fresh and honest cream and strawberries, and wished ourselves in the place of their owners, and they better off, if that could be; but how or where, imagination cannot well conceive, unless it were in heaven.

Two of these farms, Mr. C. T. Williams and Col. S. Stone's, lie in that magnificent limestone region, known as the "Green Spring Valley," in Baltimore county; the other, Mr. Perrine's highly improved farm, lies to the left of the Govanestown road, about five miles out from Baltimore.

Col. Stone's estate of *only* 1100 acres, has been gradually brought into a high state of productiveness, by thirty years of *hard knocks*. While Mr. Perrine's has been highly improved and embellished, in one-sixth of that time, by a very different process, to wit, by *hard money!* Showing how capital and taste may effect in a few years, what patient industry, however skillfully conducted, can accomplish only after five times as many.

An exact account of the processes and results, in each case, supposing all the materials and elements for it to have been preserved, would make a highly instructive agricultural memoir; far more instructive and salutary, than nine-tenths of the premiums given for heavy bullocks and swine, and heavy crops on acres of land. Of these last, sixty bushels will sometimes command *a premium*, although we have authentic accounts of *more than double that quantity, more than thirty years ago.*

Such a memoir would teach us on the one hand, how it is possible to take a farm, saddled with debt, and by extraordinary industry, judgment and perseverance, make it work out its own salvation, put up its own buildings, plant its own orchards, fertilize its own bowels, and dress itself with verdure; nothing being deficient to complete the scheme of rural contentment and felicity, except that without which, *Eden itself had been a wilderness!* Yes! your hens may lay a thousand eggs, the lowing herd come home with teeming udders, bees may swarm, adding mellifluous hive to hive, your walls may be covered with beautiful pictures, and your cellars overflow with cider sweeter and wine more aromatic, than the nectar of the gods; but what will all avail, in the absence of that fair and beloved one whose approving smile gives to all a seasoning relish, as the capital crowns the Corinthian column! No! no! Could Solomon himself appear to the bachelor who has thus surrounded himself with all else that heart could wish, he might repeat the exhortation—of all thy gettings get wisdom—and, as a wife is "the principal thing," therefore be wise and take unto thyself a wife!

Well! the other memoir in this case would read us a lesson, perhaps not less instructive, for it would teach us how he who has capital, *can* make hay while the sun shines; and how necessary capital is, to the earliest enjoyment of a thousand luxuries in the country, that money itself cannot elsewhere purchase. For where else can you sip the fresh cream as it rises to the surface; where the fragrant strawberry, as it ripens on the vine; where the delicious air as it comes sweetly floating over fields of clover and beds of violets; where else be awoke by the matin songs of birds, that come under your lattice warbling their artless songs, secure and grateful in the enjoyment of their natural freedom;

and above all, where else can you so perfectly enjoy your book or your thoughts, in such delightful and unapprehensive quiet, as in an easy old arm chair in the piazza or the shade of some venerable old tree, with a table and pen and ink at your elbow? convenient to note what strikes you, as for instance, we were just struck with the truth and force of this remark—"That learning, however various and valuable, which is buried with the possessor, is more worthless than his riches, which descend to his posterity." The moral we would draw appropriately from this is, that *every Farmer is bound to communicate for an agricultural journal, whatever he may suppose would in practice improve the management and property of his neighbours.*

But returning to the Farms alluded to, it was not to describe them, their fixtures and embellishments, for which our transient observation did not prepare us. What brought them to our mind was the promise on the one, and the presence on the other, of a great variety of *choice orchard fruit trees;* and of these we were reminded by thinking that now is the time to give directions *for making and bottling cider!* For this branch of husbandry Col. Stone has extensive arrangements on the most improved and liberal scale. We are not familiar with the best proofs of his success in this department, but that is no reason why *we never should be!* being quite sure it would form one of those exceptions, to all general rules, one of which says "familiarity breeds contempt."

In the meantime, we will submit to our impatient readers, two or three directions for conducting these operations. One for *making* cider, from the far South, communicated many years since by that very observant and patriotic citizen, so well and popularly known and remembered, General Calvin Jones. Another, by the late Thomas Hillen, who so much excelled in whatever attracted his personal care. What old resident of Baltimore is not familiar by recollection, with the excellence of *Hillen's Butter* and *Hillen's Cider?* Then in August, if we don't forget it, we will give instructions on *bottling cider*, communicated to the writer many years ago, by his esteemed friend, the late Doctor Wilkins, who carried into all his practical field and most minute domestic operations, an eager spirit of philosophical investigation, that prompted him not to be content, as most of us are, with skimming the surface, to enjoy in ignorance, the good things that nature provides; but to stir everything and get, if he could, to the very bottom, there to learn their very nature and essence. He would be as anxious and tireless, in finding out, for example, *why* cider burst the bottles, or *why* his bacon contracted rust, as he would have been to learn why a steamer *bursts* her boiler and kills thousands of people; or to trace the moral, or rather the demoralizing effect, of that accursed discovery of gold mines in the mountains of California, about which God, as if to destroy us, has first made this nation mad.

What Mr. Hillen says about ripple grass, or narrow leafed plantain, was in allusion, the reader must be told, to a vehement recommendation of it, as an excellent food for dairy cows, by friend Caleb Kirk, of Delaware. Ah! how stealthily and yet steadily time moves on his course! What is here given from Mr. Hillen, was written to us more than thirty years ago, and yet, after all our premiums and all our teachings, can any one tell us how to make better *butter*, or better *cider* than "TOMMY HILLEN'S?" We doubt if it can be done.

"RECEIPT FOR MAKING CIDER, AND PRESERVING IT SOUND FOR YEARS.—Three months ago, I was at the house of Nicholas Nall, Esq., who lives near Deep River, at the upper extremity of Moore county, where I drank *old* cider of a very superior quality; and as the habitual use of cider is eminently conducive to health, insures sobriety, imparts the agreeable sensation of strength and vigour, and is a pleasant beverage that can be afforded at a small expense; I took care to be exactly informed of his manner of making, refining and preserving it, in hope that advantage might accrue in

the publication of it. Mr. Nall had in his cellar, as well as I now remember, about eight or ten hogsheads and fifty or sixty barrels of cider of different ages—the oldest was best; nor did he think any fit to drink until it was at least a year old. That which I drank, was three years old and it was excellent. His oldest cider I did not taste, as he intends it as a treat for his executors. He complained that his stock was too small to drink it of the age he wished; but intended to fill another cellar. I here copy Mr. Nall's receipt, as he gave it to me in writing in April last:

"'All apples fit to be eaten, will make good cider. The grand secret is in cleansing it from the filth and dregs as early as possible. Each sort of apples are to be beaten and pressed by themselves. Two kinds of juice, both good, would, if mixed often make bad cider. Throw out all imperfect, sorry, and sunburnt apples, as well as dust and trash. Beat your apples before much mellowed; as they lose their strength, soundness, and spirit, if too mellow. Let them stand half a day after being beaten, before put into the press; then press them slowly; discontinue it as soon as the juice appears thin and watery. The advantage of slow pressure is in making the liquor run pure. Let your casks, previously well cleansed, be filled quite full, to permit the froth and pumice to discharge itself at the bung. When the fermentation abates, cover the bung closely with something, that may be lifted by the fixed air that escapes during the future fermentation. In a week rack off the cider carefully, ceasing the moment you observe it to run muddy: now stop the cask more firmly. In ten days rack it off a second time: and in fifteen days a third time. In every instance, the cask is to be clean and perfectly filled; and when filled for the last time, to be bunged close in a deep, dry, cellar, never to be moved until drawn for use. Late cider need not be racked until March, and then one racking, or at most two, will be sufficient. Be very careful that no water, not even the little that will adhere after rinsing the cask, is mixed with the cider. The smallest quantity of rain water will render cider unfit to keep. The addition of any quantity of distilled spirits is not only useless, but injurious.'

"Mr. Nall's method is the result of long experience, and its success justifies me in recommending it to the public. I hope it will be tried. CALVIN JONES.

"*Raleigh, July* 25, 1819.

"N. B. I ought to have mentioned that Mr. Nall told me, he had for many years tried værious plans for clarifying cider to prevent its souring, by means of milk, isinglass, scalding and scumming, filtering through sand, &c., &c., and found all useful: but is satisfied that frequent racking or drawing is far preferable to any other method he has attempted."

"Sir,—I have just observed in your paper of the 15th instant, a communication from a correspondent in Lexington, Va., upon the subject of *fining and bottling cider*. Stating therein, that 'the best he ever met with, was some years ago at the Indian Queen, which he understood was bottled by a Mr. Hillen about ten miles from that place.' As no othes person by the name of *Hillen* at that time, sold cider in the neighbourhood, I take it for granted that I am the person alluded to. But, sir, there must either have been a mistake, or misapprehension, as to the *bottling*. I never bottled any for market, but have frequently supplied the cellar of Mr. George Benner, of Baltimore, with cider *by the quantity*, and have no doubt but Mr. Benner has occasionally furnished Mr. Evans, the then landlord at the Indian Queen tavern. Were I to attempt a word of advice to your correspondent on the subject of *making* cider, it would be to avoid all rotten fruit, leaves, &c., pick up his apples as early as possible of mornings, when cold, or, at least *cool*, and grind them so; when ground, strain it through a sifter into a large trough or cistern, let it stand about two or three hours, until the fine sediment falls to the bottom, then rack it off into clean casks and let it stand and work until the foam *begins to dry* at the bung; then fill the casks up with cider *of the same quality*, and stop them as tight as he can with straw bungs, or, if *wood* bungs, they must have ventilators for fear of bursting. When they become *perfectly dry at the bung* (if straw) drive a sharp plug into the bung to exclude the air; in November rack it off through flannel into clean casks again, and let it stand till spring for bottling.—I am not sufficiently acquainted with *bottling* to offer any advice as to the best mode. Yours respectfully,

THOMAS HILLEN.

"P. S. Sir, it seems that *Farmers*, as well as *Doctors* may differ in opinion. I observed in one of your papers a few months ago, that one of your correspondents had written in commendation of *ripple grass*, *ribwert*, or, (as I think he termed it) *ribbed plantain*.—Should the gentleman's crop of this article *fall short* next year, and it were possible for me to transmit him all my share by mail, I would most cheerfully pay the postage.

T. H."

Now, good reader, we don't fail to remember, that but a small portion,

comparatively, of our readers, are cider makers, but that is no reason why those who are, should not be told of the practice of men eminently successful in the art. It takes, besides, many sorts of people to make up a world, and moreover, many who are not now, may hereafter become provident enough to plant and cultivate orchards. There is no worse sign for a Farmer, than the absence of *good fruit well cultivated.* It warrants the suspicion that he too may be, like the hemp growers of Missouri, preparing in his mind to run away from "wife, children, and friends" off to California, in the hope of drawing as a prize in that great lottery of corruption, that competency which he has not the fortitude to dig by honest industry out of his own ground.

If you don't want to learn about cider making, only tell us what you do want, and we will engage to get the latest and best information.

HOW POPULATION MAKES THE FOOD COME FROM THE RICH SOILS.

A Butter Maker.—Mrs. Marinda Hines, who has been a subscriber to a Greenfield paper without giving the proprietor any trouble about collecting his pay, shows herself in the following extract, a most notable dairy woman:

"I have five cows and have sold the past season 1300 pounds of butter, besides, milk, cream and butter for family use. Our family will average eight. I raised seven calves last spring, and some late, two of them I got of my neighbours. I have fatted 750 lbs. of pork, mostly on sour milk. Now let us leave one of the cows for family use, and set the credit of the other four, say 1300 divided by 4, makes 326 lbs. to each cow, the butter sold averaging 16½ cts., 325 lbs. at 16½ cts. makes $52 62 to each cow. The seven calves were worth 30—say 25 to four cows; and five hundred of the pork at $6 will be 30; and the 25 dollars for the calves, makes 55, divided by 4, leaves 13 75 to each cow; this added to $53 62 will make $67 27 to each cow, or $269 08 aggregate.*

"My cows are about middling size, and of the native breed. They have a good pasture in summer and good hay in winter, and that is all; except in winter, I sometimes give old Brindle a few small apples and potato parings, and the like, to make her hold out her milk until some of the others come in. When I see anything in the butter line in your paper that beats the above, I will try again."

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* At this rate, a Virginia farmer keeping 20 cows, as many of them do, to get milk and butter for their families, might make from their butter alone, without any diminntion of their staple crops, $1340 a year, that is if he could *reckon* on 16½ cents per pound for butter, $4.50 for a calf, and 6 cents per pound for pork, and who can doubt that he might do so, if, instead of following through brambles and briars, political bell-wethers, who keep up the ever lasting song of "free trade"—"sell where you can get most, and buy where you can buy cheapest" at the moment, he would see the importance of working up the natural resources of the State. Then (the farmers) would *think for themselves*, and insist on a steady encouragement of American industry; such as would bring oppressed labourers from abroad, as *consumers* into all parts of the commonwealth, there to delve her own coal—to dig her own iron from the mine—to weave her own wool—to work up her own leather and timber, and eat her own flour, and beef, and pork, and potatoes, and cabbages, and milk, and apples. and butter, and rye, and even her own blackberries. For where people are at work and well paid for it, at the loom, and the anvil, at the work bench, and in the mine, and the forge; *everything* will command money—there it is, that men learn to *feel* that time is money. In Rhode Island, around ninety odd manufactories, there are 60 distinct villages—see Mr. Kings communication in this number. In Virginia, in proportion of area, materials, water power, coal, iron, timber, capacity for producing wool, and other natural resources; there ought to be at least ten manufactories, and one hundred *consuming* non-*producers*, of agricultural products, where there is one in Rhode Island, and *would* be, were it not that we are, and *ever have been*, even without knowing it, subservient to the *colonial policy of England;* who, while she sings to all the world the cuckoo song of free trade, is staggering under a debt of £800,000,000 ($4,000,000,000) sterling, to force all the world to go to her, as the "work shop of the world" to get that which, if let alone, they would make 'for themselves. Ah! we are a wise people, and should take care, as Mr. Bulwer says—not "to offend British public opinion."—*Edit. P., L. and A.*

HOW THE LOOM WORKS BY THE SIDE OF THE FLOUGH IN RHODE ISLAND.

Woodland Farm, Manton, R. I., June 4, 1850.

MY DEAR SIR—The inquiries with which you, and several gentlemen at the South and Southwest, have just favoured me, indeed cross the track of investigations, in which I have been engaged of late, but these are so far from being completed, that I would not now pretend to make use of them, but for your friendly urgency.

The statistics of the cotton and wool manufacture in Rhode Island have been collected with considerable care and exactness, as desired, and full, and I trust satisfactory replies may also be found herein, to the other queries addressed to me.

You yourself, my dear sir, upon the occasion of your visit to Rhode Island last summer, saw one branch of the "Pactolus," which rolls its golden tide through our State.

The "Woonasquatucket," as the stream that borders my farm is named, may be taken as a fair sample of the water-power of Rhode Island.

The length of this brother of the Mississippi is about twelve tortuous miles; its width may be generously averaged at twenty feet; its depth at three feet, and its rate of current at four miles per hour.

And yet with its writhing flow, it drives twelve manufacturing establishments, with an aggregate of 37,584 spindles, employing 820 hands, and turning out 7,636,218 yards of goods per annum; print-goods, sheetings, and Kentucky jeans. One large mill, with a capacity of 10 or 12,000 spindles, is also being built upon the site where one was destroyed by fire some years ago; but to what purpose it will be devoted is not precisely known.*

The condition of the water-power; that is to say, the smallness of the streams, has sprinkled the State with manufacturing villages. Of the 198 establishments engaged in wool and cotton, 160 form, each a distinct and separate village.

Allendale, the property of Z. Allen, Esq., particularly attracted your attention, I remember, by the picturesque appearance of the mill and its surrounding cottages and gardens and groups of shade trees; the beauty of its Gothic chapel, built of stone; the dimensions, tasteful architecture, and fine location within a grove upon a hill-top, of the school-house, for the children at the mill, and of the district; toward the erection of which Mr. Allen contributed one thousand dollars.

* We cannot help noting, in this, a characteristic difference between northern and southern people. If, in a southern State, such an edifice was going up, every man, woman, and child in the county at least, would know all about it—how much it was expected to cost, what work it was to do, what profits anticipated, who were the stockholders, &c. This results, too, from the vacuum or want of employment for mind and body, in all communities of one idea—or one occupation, as described by Governor Hammond. In New England, where it must be admitted there is no lack of curiosity, or defect in the faculty of guessing, there is yet something to employ every power of mind and body. There, every man is busy all the time and every man keeps his own secrets as to the use of his capital and the results; and the more he is making the closer and darker he lies. There you see no groups of idle men lounging about bar-rooms and country stores, smoking and whittling sticks, for want of something to do. Where the loom and the anvil are close to the plough and the harrow, men feel that minutes are hours, and that "seconds are the golden sands of time."

There is one element wanting in viewing this question—that is, the cost of water-power in the North, as compared with the South—how vast is the difference? There are water-powers in the South, and coal mines that might be had almost for a song, that in the North would be worth hundreds of thousands. We could designate many such—the same of timber lands.—*Edit. P., L., and A.*

This, perhaps, is as favourable a specimen of one of our factory villages, as you could have chanced upon; and if your leisure would have permitted a stroll thither upon the Sabbath, the appearance of the well-dressed and well-behaved operatives of the mill, wending their way to hear the preached Word of God, your favourable impressions would not have been diminished.

It was incidentally mentioned above, that there are 198 cotton and woollen mills in the State.

Of these, 53 are running on print-goods with 219,985 spindles, consuming 5688¾ tons of cotton, employing 4442 operatives, and turning out 50,400,500 yards of print-cloths per annum.

Forty-four (44) mills, with 178,208 spindles, are engaged in making sheetings and shirtings; these consume 4,113 tons of cotton per annum, and with 3,820 operatives, turn off 29,839,436 yards.

Thirty (30) mills, with 27,563 spindles, and 475 hands, consume yearly 721 tons of cotton in the manufacture of 628 looms of cotton warps, cotton yarn, and thread.

There is one mill at work on diapers, making annually 160,000 yards; one on bagging, making 188,000 yards, and one on Osnaburghs. These mills with 5,308 spindles, consume in the aggregate 249 tons of cotton per annum, and employ 165 hands.

Besides these, there are three mills employed on batting and wadding, of which they roll off, as nearly as I can learn, 2,060 tons per annum, with 17 hands.

There are also one or two establishments for the manufacture of wicking, braid, &c. Of these we can obtain no statistics, but enough is known to convince the most sceptical, that princely fortunes have been spindled out to the enterprising proprietors; and to excite wonder, that there should be so little competition in this most lucrative branch of business.

Of woolen mills there are 37, working on satinets, flannels, linseys, cassimeres, tweeds, Kentucky jeans, coarse kerseys, &c. &c.

These mills run 29,105 spindles, employing 1,532 hands, and working up 1,722 tons of cotton and wool, in the making of 5,944,000 yards of goods, and twelve and a half tons of worsted.

Twenty-two mills are still.

We have also 12 calico-printing works, &c., and 8 establishments for bleaching and finishing, dyeing, &c., employing in all 1,209 hands.

Thus 198 mills, with 431,064 spindles, consume annually 12,907¼ tons of raw material, and turn-out 80,627,136 yards of cloths, with 628 tons of warps, thread, &c., and 2,060 tons of batting and wadding; and with the calico works, &c. employing about 12,000 men, women and children.

The census of 1840 gives to Rhode Island 250 cotton and woolen mills, with 13,047 operatives.

The present is a sad moment to collect the manufacturing statistics of New England. Many of our mills have stopped; many of them are working with two-thirds of their usual force; many of our mill owners have failed, and none of them, to the best of my knowledge, are making any great amounts of money. Our markets are overstocked with English goods, which are selling in New York, at twenty-five cents below cost, and the "cry is '*still they come.*" A beautiful nut by the way, is here presented to the open jaws of our free trade friends. *As soon, say they, as prices cease to be remunerating, the supply will cease.*

Whereas, the facts are notorious, that not only are English dry goods selling for twenty-five to thirty per cent. below cost, in the New York market, but American grain and flour commands more on the New York wharf, than at the Liverpool docks, transportation charges deducted, and yet *the importations, in both cases, are undiminished.*

With an immense stock of goods on hand, the English manufacturers will contrive to push their fabrics upon us, *as long as they will sell at all*, regardless of profit. They have two chances in their favour. 1st. Even fifty per cent. below cost is better than a total loss; and 2d, there is a chance, and a fair one, we must acknowledge, that American competition must soon give way before the perseverance and long purses of their trans-atlantic rivals.

The knell of the manufacturing interest of this country, whether cotton, woolen, or iron, has sounded, unless the agriculturists of the Union, the farmers of the North and the planters of the South, interfere to change its toll into a peal of joy. And, as its iron note now jars upon my ear, it is for ourselves, farmers, not for the cotton-kings, that I set up my small howl.

Here in Rhode Island, the smallest (not the least), of the sisterhood of States, are twelve thousand consumers employed in the mills; many with considerable families otherwise employed; but all gifted with good appetites and well paid for their labour, to enable them to buy corn-meal and flour, molasses and sugar, pork and beef. In palmier days it might be safe to state their number at fifteen thousand, a tithe of our population.

These men, women, and children, these "*fruges consumere nati*," from profitable customers become, upon dismissal, formidable rivals; then a fig for farming, my friend; I should apply for the charge of a toll-gate. Politicians are apt to throw away their sympathies, or their spite, upon the *manufacturers* in discussing the policy of protection.

As a body, the New England manufacturers have no claim to either of these compliments. *Capital will always protect itself*, in the long run. The manufacturing interest of New England may be crushed, and much individual suffering may ensue, but her citizens will continue to thrive under any policy, that is *stable*.

The same indomitable energy that transferred her strength, at the bidding [mainly] of [southern] wisdom, from the ocean to the mill-stream; dotting the land with cotton-mills, as she had clothed the sea with her canvass; will never fail New England in her hour of need.

The houses and lands of the Athenians were laid waste by the Persians; but Athens, none the less, tarried and triumphed at Salamis.

I speak of New England, because she is around and about me; but it is not only New England, but American character to adapt itself to circumstances, *by triumphing over them*.

The conclusion to which I come, my dear sir, from a consideration of all circumstances, is, that *protection to the American loom and anvil is of vital importance to the interests of the American plough;* of equal, if not greater importance, to the tiller of the soil, than to the twister of thread, or the beater of iron.

Many inquiries are incidentally answered above, and I now give replies, to the best of my information, as to the cost, &c., of machinery for cotton-mills, and for the manufacture of *plaid* linseys, the only kind, to my knowledge, made in Rhode Island.

The entire cost of new and reliable machinery for a cotton-mill of 10,000 spindles, with all the appliances of bandings, counter-shafts, &c., for No. 30 yarn; and including also looms, dressers, pickers, and cans, complete, is about ninety thousand dollars.

The dimensions of a building to accommodate the machinery, varies with the kind of machinery employed, and the style of cloth manufactured.

A friend informs me that a new mill now about being put into operation on No. 14 sheeting, is 268 feet long by 68 feet wide. Five stories high, with a picker-house attached 60 by 40 feet, and two stories high.

The cost of mill-buildings, water-power wheels and tenements for operatives

is about ten dollars per spindle, and the number of hands required for 10,000 spindles would vary from three to four hundred. One-fifth or one-sixth of these would be men, the remainder women and children.

The wages of the operatives differ, of course, according to the work they are engaged upon, the skill of the individual, and, in some branches, the rapidity of his manipulation (many being paid by the piece, &c.). A fair average here would be $4 50 per week for men, and $2 00 for women and children. Of course, the operatives, or the great body of them, for running a cotton-mill at the South, must be imported from here or from Europe, for some years, and from the nature of the climate, &c., larger wages might be anticipated by them, than they now receive at home. There is doubtless, however, in the Southern States much capable force comparatively unemployed, that would come flocking in to manufacturing establishments, baited with money, as, when the gardener rears a bed of flowers, bees come to gather honey from—you know not where. Linseys also are of various qualities and styles.

The kind of which I now make an estimate are rather coarse, weighing 4 to 4¼ ounces. 32–34 picks to the inch. 3 colours in warp and filling.

To operate 1000 Jack-spindles, would require 54 looms, 3 setts of cards, each consisting of 3 cards, 2 breakers, say 48 inches wide, and one finisher 40 inches wide, 2 spoolers 24 heads each, 2 warpers, &c. The cost of such machinery would be $18,000.

The mill should be 120×32 feet. 2½ stories high. Dye House 60×24. Dry House 50×32.

Such an establishment, with about 25 hands, would weave 3000 yards per day.

I have been favoured by Mr. J. L. Barber, of Mapleville, R. I., with a description of his establishment as it now is, in running order, and from his intelligence and experience, you may be assured that the mill is doing all it ought to do, and is rigged as it ought to be.

"I run 18 looms," writes Mr. Barber, "1 sett of (3) cards, 2 breakers 48 inches wide; 1 finisher 40 inches wide; 2 Jacks, one of 200 spindles, the other 160; 1 warper, 1 spooler, 18 heads, 1 wool picker. We make about 4500 to 5500 yards per week. The cost of this machinery, in running order, was $6000.

"I use one room 85×36 for cards, Jacks, looms, spoolers, and warpers. The picking is done in an outer room adjoining, as is also my finishing; this last room is 19½×20. My Dye house is 40×18. Dry house 36×18, and 2 stories high. Stock house 13×24, 2 stories. Drug office 16×12.

"I employ 1 overseer and myself (and we do the finishing), 9 weavers and 1 spare hand, (all women,) 5 on preparing warps, (4 girls from 12 to 16 years old, and one woman warper, *a good hand*,) 2 men spinners, 1 carder, 1 picker-tender and Jack of all trades, and 2 dyers. This constitutes my force, and if I were to commence anew, I should not know how to make any change for the better."

I am conscious, my dear sir, how unsatisfactory must be the result of my labours to you, and to our inquiring friends, but this is partly owing to the vagueness of the inquiries themselves.

The statistics of Rhode Island have been introduced at greater length than was necessary for a reply to queries, because I desire at some future day to attempt, in my humble way, an illustration of the benefits resulting from the harmonious action of the Loom and Anvil with the Plough, and I do not know a better "working model," than this noble little State.

"Very truly, your friend,

WILLIAM S. KING.

J. S. Skinner, Esq.

ON THE CONSTRUCTION OF PLANK ROADS—PLAN, MATERIALS, COST, AND DURABILITY.

WASHINGTON, *May* 25, 1850.

J. S. SKINNER, ESQUIRE:

DEAR SIR—In reply to yours of the 8th inst., I have to say that I have seen plank roads constructed, and have rode on them, and am interested in two, of considerable extent.

There are three of these roads that touch on my farm, and pass on it over two miles. They are the best roads imaginable—better by far than the best paved or "macadamized" road—pleasanter for the person riding—easier for the animals, and far less destructive to the carriages that roll upon them.

In the State of New York they have adopted, by common consent, a grade of not over one foot in sixteen, and this is rigidly adhered to. A good span of horses will draw on a road of that grade, an hundred bushels of wheat thirty miles in a day with ease; a smart span of horses will draw forty hundred forty miles a day. I mean horses of good breed, action, bone, muscle, &c., horses that will weigh when in good working order nine hundred each.

The average motion of the stage on these roads is eight miles an hour.

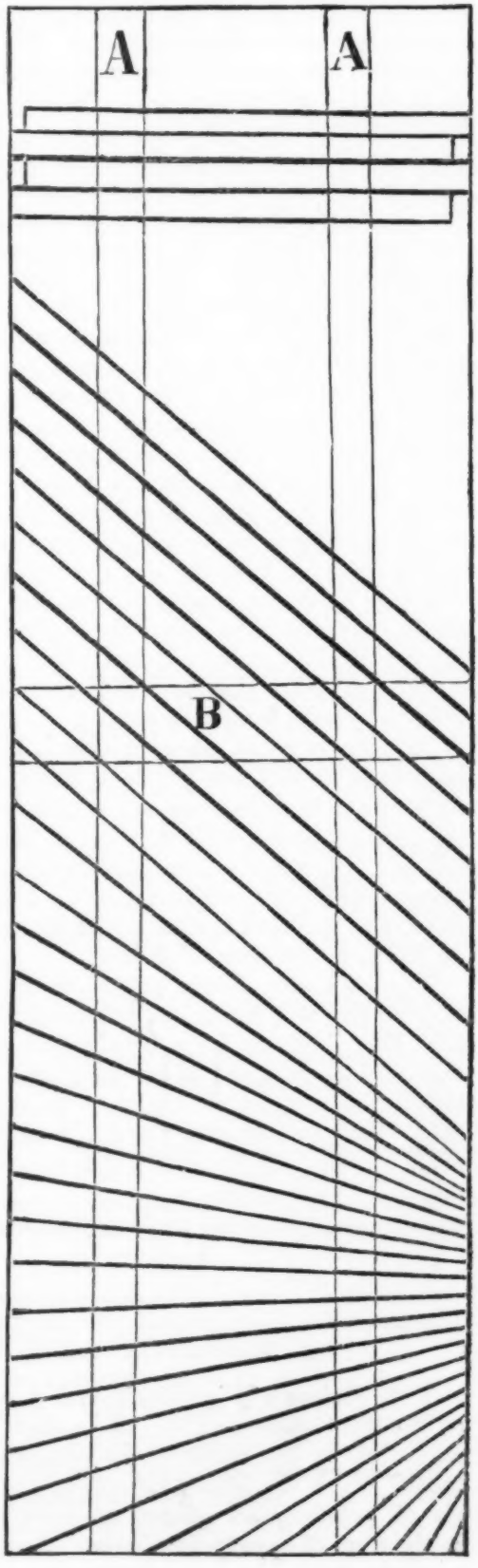
A very little snow—six inches is enough to make capital sleighing, and you can drive in the night as well as in the day, for the horses will instinctively keep the road. The roads are usually eighteen feet wide, and the centre of it only is covered with plank eight feet long. In a very sandy soil there is no need of a raised road, as the porous nature of the soil absorbs the water without the aid of any drain.

In other soils the road is formed like a turnpike, with suitable well-formed drains or ditches each side, giving the best chance for the water to run off. The intention is to have no water standing on the road, or by its sides. Your road being thus formed, the first process is to lay the "*stringers*" as at AA. These should be of two inch plank, and not less than one foot wide, and on every account, are far preferable to square scantling. They should be so imbedded in the road, that the soil or material of the road should be plump up to and even with their upper surface; and at such distance apart, say four feet from centre to centre, as that the wheels of the carriage, with the ordinary length of axle, will travel over the centre of the stringers. These stringers are both to be of the same grade, and the same level.

The stringers being laid, for a short distance ahead, the planks are laid on them. To do this with accuracy, two parallel lines are stretched on the outside of the stringers, eight feet and about six inches apart. The first plank that is laid, will, of course, touch the line on one side, while its other end will not quite touch the opposite line. The second plank will touch the line on the opposite side, and leave a space between it, and the line which had been touched by the preceding plank; and so on alternately, so that there will be a *jog* on each side for the outside wheel to catch on, and recover its place on the road, when by any means it has got off, both wheels resting again on the plank instead of cutting a rut in the earth at the end of them.

When the plank is laid, the stringers must have no earth or other matter or material on their surface; and each plank must be settled with a "commander," or large wooden mallet, until it rests flat and plumb on the stringers, and solid on the ground from end to end, no space being left for air beneath them. Each plank should be laid close to the preceding one, and driven up to it with the commander. No pinning is necessary. When the road is thus well laid, it is very difficult to raise a plank. It can hardly be done, except with a lever. The plank being laid, the next business is to em-

bank a little more earth on the sides of the road, so as to raise the road on each side at least three or four inches above the surface of the plank. It will soon pack so as to be on a level, and should not be permitted to be when packed, lower than the surface of the plank—thus the planks are kept from moving endwise, and it is easy to get the wheel of the wagon on to the plank, when it gets off when one carriage is passing another, or otherwise.



Where there is no heavy grading and not an unusual amount of bridging, and where plank can be delivered on the road for five dollars a thousand, one thousand dollars will pay for making a mile of plank road.

There is some inconvenience and some additional expense in cutting the plank only eight feet long, that length is not suited to the sled on which the plank is brought in winter from the woods to the mill, and it requires a greater number of logs to be loaded, and sawed, and a greater number of plank to be handled. This inconvenience may be obviated by cutting the logs of any convenient length; say twelve feet, and laying the plank *diagonally* across the sleepers. It is needless to add, that when thus laid, the sluice-ways are covered without the aid of cross pieces. This mode of laying the plank diagonally has not found much favor, but it is thought that planks thus laid will wear longer than if at right angles with the stringers, and that the wheel rolls easier on a plank lengthwise, or partially so.

But if this mode is adopted it is desirable that there should be at intervals of half a mile a change in the direction of the plank, as is illustrated in the diagram, which also shows the position of the stringers, and the mode in which the sluice is carried, as at B. Unless there is this change in the direction of the plank, the wheels of the carriage will crowd and grind on

the same shoulder of the axle and the same linch pin all the time. It is a proper precaution to have "washers" against both the shoulder of the axle and the linch pin always covered with some anti-friction composition; otherwise in fast driving, the hub of the wheel will heat. There is in most axles, what is called the "gather," that is an inclination which induces the wheel to run *on*, rather than *off* the axle; there is no inconvenience in this on commons roads, for its effect is continually counteracted by the inequality of the road. On the plank road where the planks are laid at right angles with the stringers, the tendency of the wheel that has a "gather" in its axle, is continually to crowd the shoulder. There is no use in this gather anywhere, and it is particularly injurious on plank roads. There is much saving in sawing the logs through and through, and then edging the plank; and there is no need that the plank should have square and full corners on each side; it is enough if on the under side of the plank both bottom edges are straight, for an inch of its width from end to end. The "*wane*" on the upper side, will immediately fill with dirt; but it is well not to place two waney planks together, and always lay the waney side of the plank up. Waney is a word in common use, as distinguished from straight. As to the durability of these plank roads, the estimate is, that they will require to be covered once in seven or eight years, unless there is so much travel as to wear out the plank sooner, which is an event devoutly to be wished; but the stringers being continually moist and nearly excluded from the air, will outlast three coverings.

I have no doubt, that in the free use of pulverized charcoal, or some other antiseptic material to imbed the plank in, the means will be devised of saving the plank from rotting, and I have no doubt that a thin coat of hot pitch, on the top of the planks, with gravel sifted on, would in a great degree prevent the planks from wearing out.

In common roads, where lumber is plenty, the plank road is the greatest improvement that has yet been made; and we, who have spent most of our days where, in the spring and fall, the roads were nearly impassable, and in the summer none too good, are impatient when we reflect how much needless toil and expense we have undergone, and how much we have suffered, by being jolted over corduroy roads. I have no doubt that a plank road from Albany to Sackett's Harbor would have saved the government, during the war of 1812, ten millions of dollars.

The toll house should extend across the road, so that when the traveler stops to pay toll, he should be under the shelter of the roof, and it is desirable, that it should be a comfortable dwelling, with cellar and cistern, and well and garden, and then the plank road company will be more likely to obtain the services of a civil, respectable, and honest family, to tend their gate. The gate should "*swing*"—accidents are apt to occur if the gate is made to rise. I have thus, I believe, given an answer perhaps too tedious and minute to your inquiries.

I remain, with great respect, your obedient servant,

CHARLES E. CLARKE.

BURLINGTON AGRICULTURAL SOCIETY.

This Society will hold its Fourth Annual Fair at Mount Holly, New Jersey, on the 9th October, 1850. It has done the most sensible thing we have lately seen done by any Society. Its premiums, instead of being offered in "base lucre," which the farmer can get by selling a hog, or a sheep, or a few bushels of potatoes, are offered in *knowledge—precious, priceless knowledge*—in the form of *appropriate books*. And there, after all, is the most disreputa-

ble impediment to the progress of agricultural improvement—that is, the neglect of parents to cultivate with their children, the *habit of reading!* Hence it is that we see so many farmers entirely destitute of books—and so many farmers, *totally unused to the habit of reading* to see what has been done, and what is needed, for progress in their business. There are hundreds who, from neglect to form the habit when young, would not read *Von Thaer's Principles of Agriculture,* one of the best books extant, and which any cultivated farmer would sooner have, than to have a fifty dollar note, if he could not get it otherwise—there are, we say, hundreds *within our knowledge,* who would not read it, if you were to put it in their hands, and who would sooner draw a silver butter ladle that he could buy for five dollars, than to draw the best agricultural library that ever was collected—it's in vain to offer to such men the alternative of taking *knowledge* or taking *money*—they will hug *ignorance* fast to their bosoms and put the money in their pockets. The Burlington Society has set a noble example in saying—As the reward for excellence, we offer you the means of learning how you may still further excel—we won't encourage the sordid love of mere money—if you can't be stimulated by a thirst for knowledge, which is another word for power and virtue, then we have nothing else to offer you.

All honor to those who were instrumental in this reform, though we doubt if it will be *popular!* and without that, what will go down in these days? *with* it, what will not—even piracy!

FIRST BIENNIAL REPORT OF THE GEOLOGY OF ALABAMA.

BY M. TUORNEY,

Geologist of the State, Professor of Geology, etc. in the University of Alabama.

We are much indebted to Governor Collier for a copy of this Report. The following letter, which accompanied it, and which we take leave to publish, will give some idea of the character of the work, and of the resources it indicates; and so far mitigates the regret we feel at not having had a moment at command to examine the work to which it refers.

We owe acknowledgments also to some friend for a copy of the Fourth Annual Report of the Board of Agriculture of Ohio, and an invitation to attend their next Fair, which we have some hope of being able to do.

Executive Chamber, Tuscaloosa, *June* 10, 1850.

J. S. Skinner, Esq.

Sir—I have sent to "The Plough, the Loom, and the Anvil," a copy of the "First Biennial Report on the Geology of Alabama, by M. Tuorney, Geologist to the State, &c.," of which I beg your acceptance. This report states the result of mere partial explorations, made at such times as the geologist could be relieved from the duties of his chair in our University; but is intended to be followed by other examinations, until the survey of the State is completed.

Quite enough is developed to show that Alabama presents a most interesting field for the geologist, and is unsurpassed in the variety and richness of her natural resources. Of course I except California, whose untold treasures of gold will certainly enrich a few, while the masses who seek it, are destined to combat with unrelenting poverty, and be sufferers in morals, even to their children's children. Such, I predict with confidence, will be the result. I remember no exception to such adventures in the history of the world.

Alabama, you will observe, contains an abundance of coal, iron, and lime, and beds of marble, white, black, and variegated, have been discovered in different localities, altogether superior to the best qualities found south of New England. These may all be made available by labour and capital, without the aid of protective duties. In this I think you will agree with me, when I state that labour, whether slave or free, can be procured in this State for thirty-three per cent. less than in Pennsylvania, and provisions are much cheaper. Notwithstanding the tariff of 1846, of which iron-masters in the Middle States complain so much, bar iron in the interior of Alabama retails at six and

eight cents, yielding a greater profit to our manufacturers, than cotton at twelve cents. Iron ore, coal, and lime, with an abundance of wood and water-power, are found contiguous to each other, and may be purchased from the United States at $1 25 per acre.

Cannot northern capitalists be induced to enter this inviting field for enterprise, and thus aid in advancing the prosperity of a country, which has contributed so much to build up their overgrown fortunes? I speak advisedly when I say that our laws as administered, afford as prompt and efficient protection to persons and property, as those of Pennsylvania and New York, while we are free of apprehensions of violence from mobs. I would not speak invidiously, but a more elevated morality or refined society is not found elsewhere. There can be no well grounded objection to investing capital in Alabama, upon the hypothesis of the instability of Southern institutions, or of the versatile character of her population. The exciting discussions of the last fifteen years have discovered to the South her boundless resources, and consequent power; and if true to her interest, her progress will be onward. She will practically renounce the pupilage and dependence, to which she has so long submitted with cheerfulness and childlike obedience. But she has no wish to place herself in an antagonistic position to the North. She is devotedly attached to the Union, and would only put it in peril to escape a greater evil than dissolution itself. We all hope that such an alternative may never be presented.

May I beg of you to notice Professor T.'s report, and publish such extracts from it as you may deem most interesting?

I have the honour to be, with great respect, your most obt. servt.,

H. W. COLLIER.

For the present we can only refer the Governor to our remarks on some passages in Governor Hammond's address, as published in our June number; and to the letter in this number, from a Friend of the Union in the North to a Friend of the Union in the South—with the full assurance it will receive as well from him, as from the gentleman to whom it is addressed—Gen. J. H.—a fair and candid examination.

THE PRICES OF LEADING AMERICAN AGRICULTURAL STAPLES.

As we can't quote from every market, we don't see that we could select a better one than the great New York market—the Liverpool of the United States.

We have asked for the verdict of the jury of readers, whether the space occupied for this subject should be so appropriated. One respectable juryman says yes, and that, so far, is the only voice we have heard. While we hold the case still under advisement, we give the following:—If any of our patrons desire to have other articles added, it would be difficult to suggest any that we cannot find in the same comprehensive and reliable authority—the New York Dry Goods Reporter.

WHOLESALE PRICES.

Duties payable in cash. Goods stored to be sold at public auction at the end of one year. The ton in all cases to be 2240 lbs.

COAL.—Duty 30 per cent. ad. val.			
Liverpool Orrel	per chaldron.	7 50	*a* — —
Newcastle, Coarse		6 75	*a* 6 87½
Scotch		5 50	*a* — —
Sidney and Pictou		5 50	*a* — —
Anthracite	per 2000 lb.	5 50	*a* — —
COCOA—Duty 10 per cent. ad val.			
Maracaibo		—	*a* —
Para		5⅝	*a* 5¾
St. Domingo		5¼	*a* 5½
COPPER—Duty, Bolts and Braziers', 20; Pig, Bar, and Old, 5 per cent. ad val.			
Sheathing, free.			
Sheathing, New		— 21½	*a* — —
Sheathing, Old		— 18	*a* — 18¼
Sheathing, Yellow		— 17½	*a* — 18
Pig, Peruvian		— 17½	*a* — 18
Bolts		— 24	*a* — 25

COTTON—	Atlantic ports.	Gulf ports.
Inferior	none	none
Ordinary low to good	11¾ a 12¼	11¾ *a* 12¼

COTTON—	Atlantic ports.		Gulf ports.
Middling low to good	12⅜ a 12¾		12⅜ *a* 13
Middling fair to fair	12⅞ a 13¼		13¼ *a* 13¾
Fully fair to good fair	13½ a 13¾		14¼ *a* —
Good and fine	none.		none.
FLOUR, MEAL, &c.—Duty 20 per cent. ad val.			
No. 2, Superfine		per bbl.	4 75 *a* 5 00
State, common brands			5 50 *a*
State, straight brands			5 62½ *a* — —
State, favorite brands			5 75 *a* 5 81¼
Ohio and Indiana, mixed brands			5 75 *a* 5 81¼
Michigan, mixed brands			5 75 *a* 5 81¼
Michigan and Ohio, straight do.			5 81¼ *a* 5 87½
Michigan, favorite brands			5 87 *a* 5 93¾
Michigan, fancy brands			5 91 *a* 6 00
Genesee, pure			6 21½ *a* 6 25
Ohio, fancy brands			6 21½ *a* 6 25
Genesee, fancy brands			6 31 *a* 6 43¾
Ohio, extra brands			6 37½ *a* 6 50
Genesee, extra brands			6 50 *a* 7 00
Canada . . . (in bond)			5 12½ *a* 5 18¾
Brandywine			5 75 *a* 5 81
Georgetown			5 75 *a* 5 87½
Alexandria			5 75 *a* 5 81
Baltimore, Howard street			5 75 *a* 5 81
Richmond, Country			— — *a* —
Petersburg City			5 75 *a* 5 81
Fredericksburg			5 85 *a* —
Rye Flour			2 94 *a* 3 12½
Corn Meal, Jersey			2 94 *a* 3 —
Do. Brandywine			3 25 *a* — —
Do. do.		punch.	15 00 *a* — —
FEATHERS.—Duty 26 per cent. ad val.			
Live, American		per lb.	—33 *a* — 35
GRAIN.—Duty 20 per cent. ad val.			
Wheat, White Genesee		per bush.	— — *a* 1 50
Wheat, Canada, (in bond)			1 25 *a* 1 30
Wheat, Ohio			1 15 *a* 1 25
Wheat, Red and Mixed W.			1 00 *a* 1 18
Wheat, Southern			1 20 *a* 1 35
Rye, Northern			— 62 *a* — —
Corn, round Yellow			— 65 *a* — 66
Corn, round White			— 63 *a* — 63¼
Corn, Southern White			— — *a* — —
Corn, Southern Yellow			— 64 *a* — 65
Corn, Western mixed			— 63 *a* — 64
Barley, Western			— — *a* — 66
Oats, Northern			— 47 *a* — 48
Oats, Jersey			— 45 *a* — 46
Oats, Southern			— 43 *a* — —
Peas, Black Eyed		per bush.	2 — *a* — —
White Peas			2 65 *a* — 70
" Beans, Southern			1 25 *a* 1 75
" " Northern			1 44 *a* 1 75
Canadian Peas			— 60 *a* — 65

HEMP.—Duty, Russia and Italian, 30 per cent. ad val.
Manilla, Jute and Sisal, 25 per cent.

	N. York.	Boston.	N. Orleans.	St. Louis
Amer. Dew-rotted	$115 *a* 125	$115 *a* 130	$95 *a* 102	$80 *a* 92
" Hackled	160 *a* 190	150 *a* 170	—	—
" Dressed	—	180 *a* 190	—	—
Manilla	9c	9¼ *a* 9½	—	—
Russia	210 *a* 215	207 *a* 210	—	—
Jute	75 *a* —	—	—	—
Sisal	9	—	—	—
Italian	195 *a* 200	—	—	—

HAY.—Duty 20 per cent. ad val.			
North River, in bales, per 100 lbs.		— 60 *a* —	65
HONEY.—Duty 30 per cent. ad val.			
Cuba	per gall.	— — *a* —	54
HOPS.—Duty 20 per cent. ad val.			
1849	per lb.	— 13 *a* —	17
IRON.—Duty 30 per cent. ad val.			
Pig, Scotch, per ton		22 — *a* 23	50
Bar, English refined		55 — *a* 57	50
do do common		40 — *a* 42	50
Sheets do		— 3¼ *a* —	—
Swedish		87 50 *a* 90	—
English Hoop		4 — *a* 5	—
PROVISIONS.—Duty, Cheese 30 per cent.; all others, 20 per cent. ad val.			
Beef, Mess, Co. and City	per bbl.	8 50 *a* 10	50
Beef, Prime, Co. and City		5 50 *a* 6	87½
Beef, Prime Mess	per trce.	17 — *a* 20	—
Pork, Mess, Ohio, new	per bbl.	10 62½ *a* 10	69
Pork, Prime, Ohio, new		8 68¾ *a* 8	75
Pork, Prime, Mess		10 00 *a* 10	25
Lard, Ohio, Prime, in bbls.	per bbl.	— 6¾ *a* —	—
Hams, Pickled		— 6¼ *a* —	7¼
Hams, Smoked		— 6½ *a* —	10½
Shoulders, Pickled		— 4 *a* —	4¼
Shoulders, Smoked		— 4½ *a* —	6
Beef Hams, in Pickle	per bbl.	14 50 *a* —	—
Beef, Smoked	per lb.	— 9¼ *a* —	9½
Butter, State, inferior		— 7 *a* —	10
Butter, State, fair to good		— 13 *a* —	17
Butter, State, prime and choice		— 18 *a* —	24
Butter, Ohio		— 10 *a* —	14
Cheese		— 5 *a* —	7
SEEDS.—Duty, Clover and Timothy Free; Flax Seed 20 per cent. ad val.			
Clover	per lb.	— 6 *a* —	6½
Timothy	per tce.	14 — *a* 16	—
Flax, Rough, in bulk	per bush.	1 50 *a* 1	60
TOBACCO.—Duty, Leaf and Unmanufactured, 30; Manufactured, 40 per cent. ad val.			
We quote:			
Virginia	per lb.	— 4½ *a* —	9
Kentucky		— 5 *a* —	9
St. Domingo		— — *a* —	—
Cuba		— 17 *a* —	21
Yara		— 35 *a* —	45
Havana, Fillers and Wrappers		— 18 *a* —	75
Florida Wrappers		— 15 *a* —	60
Connecticut Seed Leaf		— 16 *a* —	20
Pennsylvania Seed Leaf		— 10 *a* —	20
Manufactured, Nos. 1, 5, and 8		— 17 *a* —	22
Manufactured, Middling, do.		— 15 *a* —	16
Manufactured, Common, do.		— 10 *a* —	12
Manufactured, 32s		— 12 *a* —	20
Manufactured Ladies' Twist		— 15 *a* —	20
Manufactured Cavendish		— 18 *a* —	40
Manufactured, medium		— 15 *a* —	17
Manufactured, common		— 12 *a* —	14

"The Wool Grower" for June says, if Farmers can get 40 cents per lb. for heavy fleeces, even of a pretty good grade, we say sell by all means. They will not do better if they hold it till next autumn.

A lot of 3000 pounds, one-fourth to full blood, is reported, in a late "Baltimore American," as having been sold at 36 cents.

For "The Plough, Loom, and Anvil."

CALENDER OF OPERATIONS.

WHE! Summer is upon us with its 94° of temperature. Vegetables of every description are progressing rapidly to maturity. Those who were particular in sowing the earliest kinds of peas, such as Prince Albert and extra early, have them now in abundance. The early six weeks beets will soon be fit for the table, and before another month, we will be luxuriating upon tomatoes. As soon as the strawberries have matured their crop, trim off all the runners, give the beds a good manuring, and dig between the rows full spade deep, the plants will soon tell of the benefits derived therefrom: allow no runners to be made during the remainder of the season, except on those sorts that young plants are desired for new plantations.

Plant more sugar corn for a late table crop, snap short beans, also late beets, but not later than the 10th of July; prepare ground for celery, late cabbage, savoys, also red cabbage for pickling; sow cucumbers for the same purpose if not already done, water early celery plants during dry weather; destroy weeds of every description is advice always in time.

Fruit Garden.—Bud plum trees in the early part of the month before the bark hardens, if delayed till the end of the month they will be too late; bud cherries and pears in August, and apples and peaches in September. Every farmer should endeavour to propagate the pear on the quince stock; these stocks can be purchased from nurserymen for a mere trifle, and pears will generally produce fruit in two or three years after the operation: it has been supposed the pear is not so long-lived on this stock as upon the natural stock, but that is a mere supposition. We know trees thirty years old, and they were, when we last saw them, in perfect health and full of fruit; the buds of the pear are inserted on the quince close to the ground, and when removed the whole of the stem of the quince is planted underground, guarding it from the borer, which frequently destroys it in some soils.

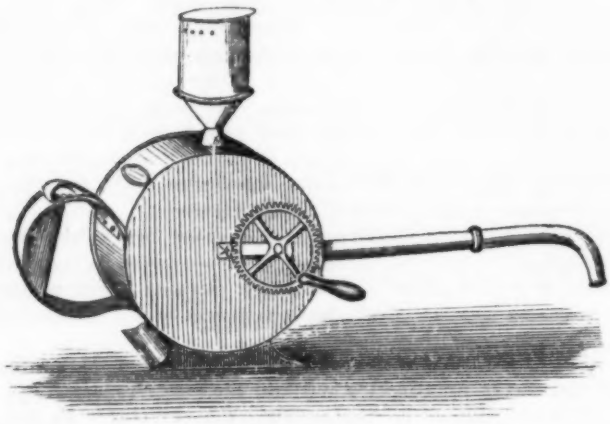
Keep a good look-out for catterpillars; destroy them before sunrise or about noon, when they are all in their nests. Pole shears are indispensible implements with the orchardist, and the very article to use for this purpose; they are also excellent for collecting fruit from the extremity of the branches, by suspending a small basket under the shears, which will displace the fruit from the tree into the basket. We were faithful last year in destroying thousands of caterpillars, and this season as yet we have seen none.

The Farm.—Haytime and harvest, is proverbially a busy season with every farmer, and this promise us an abundant reward for our toils. Hay is a heavy crop, and wheat in this section will be ditto. One word, never put *dock-seed* into your manure heap or *hay-mow.* We were nearly unnerved the other day, by one of our neighbours housing it with his hay. Prepare for as much Swede Turnips as you can manure. We sow after the hay crop is from the ground; plough thoroughly, harrow well, furrow up your ground twenty-seven inches from ridge to ridge, distribute the manure in the furrows, cover it up at once, and follow with your turnip seed on the top of the ridge. We run a light roller on the top of our furrows, and then sow with one of Pennock's seed drills; the work is done in the twinkling of an eye. We also drill in our common turnips, preparing the ground well and manuring freely; this crop with us succeeds oats. We last season had a very heavy produce, greatly to the benefit of our stock and manure heap, but how far we drag behind, or at least how far we are in the rear of what we might have been, we appear weak when we are actually strong.

The largest and most influential body of men are the Agriculturists, the "tillers of the soil." It is truly cheering to see the laudable effort that is everywhere making at the present day, to raise the intellectual and social position of the farmer. We hear of Agricultural Bureaus, Colleges and Model Schools, professing to have for their object this desirable end. Agriculture is in fact taking a very high position, and we predict the time is not far distant, when we may see the tillers of the land, a body of men in no respect inferior (in high intellectual acquirements) to the members in either of the faculties of Divinity, Law, or Physic; and to bring about such a consummation, there ought to be a standard, by which to judge of the qualifications of the Farmer. In the faculties above alluded to, an ordeal is established, where the candidate must pass before he is considered qualified to fill the office for which he aspires. I can see no valid objection for not following such examples, in the case of Farmers. There is ample room for carrying out such a plan, the materials are ready at hand, it only requires the impress of a master mind to model them into an institution.

BROWN'S PATENT FUMIGATOR.

Price ten shillings.



A portable instrument, for fumigating greenhouses, stoves, and frames, or shrubs and flowers, in the open air, without injuring the most delicate plant: delivering the smoke cool, in a dense mass, and effecting a great saving of tobacco. Manufactured and supplied to the trade, by Messrs. Barber and Groom, London; and may be had of all ironmongers, seedsmen, and florists.

We had this engraved because it occurred to us that it might be useful, not only for the purposes indicated, but for smoking young poultry, to cure them of the gapes, with the fumes of tobacco; a process which we have often seen, and, when a little shaver, assisted to make successful. The revolving of the wheel, like that of a wheat fan, serves to keep burning the substance ignited in the hopper, by creating a vacuum below, as the paddles of the wheat fan creates a current of air. It cools the smoke, too, at the same time that it expels it from the nozzle of the fumigator.

N. A. C. will please send us more of the perennial pepper seed, and not put it loose in the letter, as in that case it is liable to be lost, before or at the time of opening it. He will have received, we hope, the seed he wrote for. We will gladly send to any friend, ½ an ounce of almost any kind of seed, with which they may desire to make experiment.

☞ We have reason to hope that when the debate in Congress on slavery, at which the public is becoming indignant, shall have been decided, if ever, the true *patriots*, of both *parties*, will combine again to do something for the industry of *our own country*.

Painter's, Gilder's, and Varnisher's Companion. This is a very neat little book, compiled with great care, and written in a concise, but clear and simple style. It contains descriptions of the processes, together with receipts for producing every kind of colour, used in the ordinary practice of the Painter, selected from the very best authorities, with the latest improvements and inventions, showing the present perfected state of the art. Great accuracy is manifest in the enumeration of the ingredients, and clear instruction given for their various application. Also, the principal operations connected with *Gilding and Varnishing* are clearly explained. To persons of either of these pursuits, it is an invaluable work, from which a fund of practical knowledge may be obtained, which will make every skillful, intelligent workman, master of his calling. It is a small book, which all persons of this class *may* and *should* own. Published by H. C. Baird, only successor to E. L. Carey, Fifth and Market streets, Philadelphia.

The Dyer and Colour Maker's Companion. This little book, from the same enterprising publisher, contains upwards of two hundred receipts for making colours of every distinction, and shade, for dying. Also the principles of the scouring process, and directions for preparing, washing, and finishing, the goods. It is a work which will enable every dyer to be his own teacher, and become independent in his art. The lawyer might as well attempt to plead his case, without referring to any book, as the dyer to become an adept without a work of this kind.

THE

AMERICAN LIVE STOCK INSURANCE COMPANY,

VINCENNES, INDIANA.

Charter Unlimited: Granted January 2d, 1850.

CAPITAL $50,000! *Stockholders Individually Liable.*

For the insurance of *HORSES, MULES, PRIZE BULLS, SHEEP, and CATTLE,* of every description, against the combined risks of FIRE, WATER, ACCIDENTS, AND DISEASE; also upon stock driven to Eastern markets, or transported South.

☞ *Losses paid in 30 days after proof of death.* ☜

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☞ Agents wanted for all parts of the Union.

New Oxfordshire Long Woolled BUCKSfor SALE.

The subscriber has about forty Long Woolled BUCKS which he will dispose of at any time when called for. This flock (which has been bred from some of the best ever imported) is so well known they need no further description than to say they continue to yield their very heavy fleeces, from 9 to 16 lbs. of washed wool, and when full fatted will weigh upwards of 300 lbs. alive. This breed of sheep are remarkably healthy and very prolific, and make a very profitable cross with the various breeds of this country, doubling the weight of wool and mutton. The price will be from $50 to $75 for bucks, and $25 to $30 for ewes, according to the quality of the sheep. Gentlemen are invited to call and see for themselves, or communicate by mail.

Direct to Delaware City, Del. CLAYTON B. REYBOLD.

NO HUMBUG.

The undersigned, after twenty years' experience and much research, has discovered a cheap chemical compound, easily applied, which completely prevents the ravages of the Bee-moth, and which can be adapted to each and every kind of hive, whether patent or otherwise. This discovery he will impart to any individual on the receipt of one dollar—it being understood the purchaser shall hold himself honourably pledged not to impart the information to others. The whole contained in a circular, to which is added several valuable suggestions in the construction of hives and management of bees, worth more than any patent hive in existence. Address, post paid,

SETH WHALEN,
Ballston Spa, N. Y.

BALTIMORE PRICES AND PROSPECTS.

Baltimore, June 17th, 1850.

JOHN S. SKINNER, Esq., Philadelphia.

DEAR SIR—Though the accounts from Europe for several months past have been rather discouraging to purchasers of tobacco here, the demand has been active, and prices for all descriptions uniform. As stated in our former communication, the rates paid early in March for the better kinds were not maintained, but factors had submitted to a decline of from 50 cents to $1 00 per 100 lbs. The prices for this description have not improved, and the sales are therefore limited. For common kinds the demand has been large, and none save black, heavy qualities have been sold under $4 00. The shipments have been correspondingly large, occasioned in a great measure by the very low rate of freights. The Upper Country or Bay tobacco has been selling as fast as received, the prices realized being higher than has been paid for similar descriptions since 1829. The quality and extent of this crop is far short of that brought to market last year. The Ohio tobacco has been selling readily and at very fine prices.

The accounts from all parts of the State about the growing crop are unfavourable, though it is too early to form a definite opinion as to the extent of it.

The inspections so far have been 17,464 hhds. against 19,804 to the same time last year.

WHEAT.—The supply light. Red, $1 14 *a* $1 17; white, $1 25 *a* $1 30.

CORN.—During the last week prices declined fully 3 cents. Present quotations for white, 57 *a* 58 cents; yellow, 59 *a* 60 cents.

Very respectfully yours,
RICHARD H. HALL & SON.

E. WHITMAN'S
AGRICULTURAL WAREHOUSE AND SEED STORE,
No. 55 Light Street,
BALTIMORE, Md.,

Will contain, this season, the largest stock of Improved Agricultural Implements ever offered for sale in this country, amongst which will be found

☞ 100 Whitman's Superior Wrought Iron Railway Horsepowers, which received the first premium at the last fair of the Maryland Agricultural Society.

☞ 100 Lever or Sweep Powers, among which will be found all the latest improvements.

Also Eddy's or Taplin's Horsepower, which is portable, simple, and durable, consisting of one wheel only.

☞ 200 Whitman's Thrashers, which received the first premium in Baltimore in 1849. The cylinder of this thrasher being all in one piece of iron, will last one hundred years in constant use. A great improvement has recently been made in the teeth or spikes, which makes it the most perfect machine now in use.

☞ 100 other Thrashers, comprising various kinds and improvements.

☞ 7000 Ploughs, consisting of every kind now in use, and a great variety of Cultivators, Cornplanters, Cornshellers, Straw Cutters, Seed Sowers, Grant's, Bamborough's, and various other Wheat Fans, together with every article in the farming line.

Also, a general assortment of

FIELD AND GARDEN SEEDS,

All of which will be sold at wholesale and retail on the most favourable terms.

EZRA WHITMAN.